NATIONAL SOCIETY FOR VOCATIONAL EDUCATION

Bulletin No. 32

SIGNIFICANCE TO VOCATIONAL EDUCATION OF THE PRESENT ECONOMIC UNREST

AGRICULTURAL, COMMERCIAL, AND INDUSTRIAL EDUCATION

VOCATIONAL EDUCATION AND SOCIAL SCIENCE IN THE HIGH SCHOOL

FUTURE PROBLEMS OF STATE AND NATIONAL ADMINISTRATION OF VOCATIONAL EDUCATION

NATIONAL SOCIETY
FOR
VOCATIONAL EDUCATION

BULLETIN No. 32

Proceedings of the Joint Convention of the

NATIONAL SOCIETY FOR VOCATIONAL EDUCATION

and the

VOCATIONAL EDUCATION ASSOCIATION OF THE MIDDLE WEST

Chicago, February 19, 20, 21, 1920

Issued June, 1920
NATIONAL HEADQUARTERS
140 West 42d Street
New York

PRESS OF
CLARENCE S. NATHAN, INC.,
NEW YORK.

CONTENTS

Section V. VOCATIONAL EDUCATION AND SOCIAL SCIENCE IN THE HIGH SCHOOL

Section VI. FUTURE PROBLEMS OF NATIONAL AND STATE ADMINISTRATION OF VOCATIONAL EDUCATION

OFFICERS OF THE SOCIETY

WILLIAM J. BOGAN
President

L. H. DENNIS
First Vice-President

LEWIS A. WILSON
Third Vice-President

CLAY D. SLINKER
Second Vice-President

MRS. EVA W. WHITE
Fourth Vice-President

JOHN CLYDE OSWALD
Treasurer

GENERAL COUNCIL

TERM ENDS 1923

*CLEO MURTLAND, Associate Professor Industrial Education, University of Michigan, Department of Education, Detroit, Mich.
MARY GILSON, Superintendent of Employment and Service Department, Joseph & Feiss Company, Cleveland, O.
*DAVID SNEDDEN, Teachers' College, Columbia University, New York City.
R. J. LEONARD, Professor Industrial Education, University of California, Berkeley, Cal.
C. A. BENNETT, Manual Arts Press, Peoria, Ill.
H. L. KENT, State Director Vocational Education, Kansas.
MATTHEW WOLL, Vice-President American Federation of Labor, Chicago, Ill.
WILLIAM C. REDFIELD, Former Secretary of Commerce, New York City.
SARA A. CONBOY, Secretary-Treasurer United Textile Workers of America, New York City.
J. B. HOBDY, State Director Vocational Education, Alabama.
MAUD I. MURCHIE, State Supervisor Home Economics, Sacramento, California.
A. G. BAUERSFELD, Supervisor Vocational Education in High Schools, Chicago, Ill.

TERM ENDS 1922

*GEORGE A. WORKS, Professor Rural Education, Cornell University, Ithaca, N. Y.
K. G. SMITH, State College of Iowa, Ames, Ia.
L. C. MARSHALL, Dean School of Commerce, University of Chicago, Ill.
ELIZABETH FISH, Principal Girls' Vocational High School, Minneapolis, Minn.
*CHAS. R. RICHARDS, Director Cooper Union, New York, N. Y.
*IRIS PROUTY O'LEARY, Special Assistant Vocational Education for Girls and Women, Trenton, N. J.
CHESTER J. TYSON, Agriculturist, Floradale, Pa.
A. LINCOLN FILENE, Wm. Filene's Sons Company, Boston, Mass.
W. A. LAYMAN, Wagner Electric Manufacturing Co., St. Louis, Mo.
*HUGH FRAYNE, Organizer American Federation of Labor, New York, N. Y.
M. EDITH CAMPBELL, Director Schmidlapp Bureau for Girls and Women, Cincinnati, Ohio.
CLARENCE J. HICKS, Assistant to the President, Standard Oil Company of New Jersey, New York, N. Y.

---

*Executive Committee.

TERM ENDS 1921

ORSON RYAN, Superintendent Carbon County Schools, Price, Utah.
J. M. WATTERS, Dean School of Commerce, Georgia School of Technology, Atlanta, Ga.
MRS. LUCINDA W. PRINCE, Prince School of Education for Store Service, Boston, Mass.
HELEN R. HILDRETH, Director Worcester Girls' Trade School, Worcester, Mass.
E. E. MACNARY, District Comptroller, U. S. Shipping Board, Emergency Fleet Corporation, New York, N. Y.
T. E. BROWNE, State Director of Vocational Education, North Carolina.
ALICE LOOMIS, State Supervisor Home Economics, Lincoln, Neb.
DUDLEY M. HUGHES, Danville, Ga.
*PERCY S. STRAUS, R. H. Macy & Company, New York, N. Y.
MRS. MARGARET J. STANNARD, Garland School of Homemaking, Boston, Mass.
FRANK DUFFY, General Secretary United Brotherhood of Carpenters and Joiners, Indianapolis, Ind.
LEWIS GUSTAFSON, Superintendent David Ranken, Jr., School of Mechanical Trades, St. Louis, Mo.
L. H. HOLTSCLAW, High School of Commerce, Detroit, Mich.

---

*Executive Committee.

SECTION I

SIGNIFICANCE TO VOCATIONAL EDUCATION OF THE PRESENT ECONOMIC UNREST

I

THE PUBLIC AND THE CONSUMER

A. J. TODD
Labor Manager, B. Kuppenheimer & Company, Chicago

Among the causes of economic unrest to which we must make an educational approach, there are certain prevalent phenomena, such as the well-nigh universal discontent of the normal human being, sometimes a vague discontent, sometimes pretty definite and concrete, the discontent which we think of as one of the prime motive forces for human progress. There is also such a mental canker as the worker's uncertainty about his job, particularly aggravated in a time of industrial transition and readjustment, but always present to a greater or less degree. Along with this uncertainty and partly to be considered as a cause of it, is ignorance on the part of the worker of the higher operations of business finance and management with, of course, a proportionate suspicion which is not altogether counterbalanced by native human loyalty or inertia. This ignorance takes the form of suspicion of ulterior purposes in even the simplest things but is particularly active with regard to new plans or operations. There is often a general undercurrent of fear of exploitation which expresses itself in a more or less conventional attitude of wondering "what the bosses are trying to slip over now." There is also to be reckoned now, as in all other times, the influence of the chronic sorehead and professional agitator, although I am convinced that their influence is now and always has been grossly overestimated. Moreover, it is to be remembered that the professional agitator is likely to make his strongest impression upon tired minds and bodies. Fatigue leaves men more or less

unresistant to hypnotic appeals. Tired men are either off guard, or apathetic, or ready for some hot stimulant which will offer them a moment's relaxation or a surcease from their troubles. We should also include here the organized movements for social reform and criticism which have grown up in the last hundred years and whose activities in some form or other have persisted even through the war.

But in addition to these, there have been certain new causes of unrest which have become more articulate during and since the war. First,—there is a pretty general war-bred disorganization of industry and of political life. So many new experiments were tried out in the war and so many hopes built upon them that when they were suddenly scrapped soon after the armistice was signed, the let down was so intense as almost to take on the character of a break down. Second,—there has been a sharp dislocation of living costs, whether due to profiteering or cheap money or to a baffling combination of various factors. Third,—there is revolutionary propaganda coming from Eastern and Central Europe. There is the feeling on the part of many workers that in spite of distorted press notices and deliberate censorship, a gigantic but successful experiment in a new form of political and industrial organizations is being carried on in Russia. It is perfectly true that this revolutionary propaganda, whatever its source, would have comparatively little effect unless compounded and reinforced by other causes at work in our midst. Fourth,—there is the inoculation of American workers with the success of the active at least, if not radical labor parties in Great Britain. For instance, the Triple Alliance of three great unions in England may within a few weeks be paralleled in the United States by a similar coalition of coal, steel and railway workers. The social reconstructive program of the British Labor Party produced a profound effect upon American workers as well as upon American liberals and the intelligentsia. Fifth,—partly as effect and partly as cause should be reckoned the pro-labor pronouncements of various religious bodies—Quakers, Roman Catholics, Methodists, Universalists and Jews. The social reconstruction program of certain bishops of the Roman Catholic Church played a considerable role recently in the steel strike in Western Pennsylvania. Sixth,—there is a growing perception of a discrepancy between political liberty, equality and democracy and the apparent feudalistic regime of subjection in certain

sections of American industrial life. There is also, as a consequence of certain popular war slogans, a demand that democracy be made a fact and not a mere word and particularly that industry which has notoriously lagged behind other fields of life in its institutional development and in its organization for securing justice and peace, be brought up to the level of political achievement. Finally,—we must not overlook the self-conscious importance of labor which has resulted from the government's policy of advertising its indispensability during the crises of war,—a new version of first in war, first in peace, first in the hearts of their countrymen. If this undue self-appraisement has become a settled conviction it has been reinforced by the chronic shortage of labor supply and resultant inflated wages.

To summarize, the chief causes of industrial unrest are a perception of inconsistency, a demand for a wider incidence of democratic control, a demand for a less wasteful industrial organization and an unfulfilled need for some adequate machinery through which the untapped resources of intelligence amongst the mass of the workers may be brought to the service of industrial management and through which grievances may be adjusted by the orderly process of constitutional government instead of by resort to direct action.

The possible remedies for this industrial unrest in so far as the public and the consumer are concerned appear more or less as the self-evident corollaries to the foregoing analysis.

In the first place, the greatest danger to the public's interest which industry now faces is the urgent demand for control and for power without a proper correlative capacity and sense of responsibility. A dictatorship of the proletariat would be in no respects superior to a dictatorship of capitalists unless the change of masters would unlock new stores of administrative skill, technical capacity and willingness to accept responsibility on the part of the rank and file of the workers. Industrial democracy will be forced to stagger along a zigzag course of extravagance and futility just as political democracy has staggered, until we get somehow or other in these United States above our present level of education. It will be one of the great astonishments of history that American Democracy has had the hardihood to attempt our great political experiment upon a basis of an average sixth grade education. I can see no prospects of harmonizing the discrepancy between the democratic ideal and democratic practice in either politics or

industry until our educational system is taken more seriously and until it functions more profoundly. The issue of industrial democracy hargs just as much on the battle against illiteracy and the battle for raising the compulsory school age and for the continuation school as it does upon some of the new schemes for employee representation, profit sharing, trade courts and national boards of arbitration.

This campaign for education should, in the long run, prove to be the most effective Americanization work. We in America have always prided ourselves upon the fact that our assimilation or, in the new phrase, our Americanization process, has been rather of the "attractive" than of the "coercive" type. Thus we have ranged ourselves alongside of England and France rather than with Russia or Prussia in our efforts to place the stamp of American life upon our population. In line with that tradition the educational temper protests against some of the Americanization schemes which have been proposed recently as savoring too much of forcible feeding. Jerry-built houses are always a poor investment; but jerry-built Americanism is a menace to boot, with all the speculative risks of get-rich-quick finance.

If the public wishes to protect itself against the adverse effects of industrial unrest it must back up efforts to create industrial government in times of comparative quiet instead of waiting till crises like the coal-miners' strike throw the country into panic and impel the public to scream for punitive measures and hastily wrought legislation as a counsel of desperation.

In some way or other the public will have to get into the attitude of requiring more information about such industrial experiments, as for example are being carried on in the garment industry. To illustrate, under the machinery in the men's garment industry, an impartial arbitrator represents and is paid equally by the manufacturers and the workers; but the question may easily arise whether this arrangement for settling industrial disputes does not exploit the public instead of protecting it. Does the public know whether its interests are safe-guarded; is it sure that the manufacturers and the workers are not in collusion against the rest of the world? It is a matter of record that this question has definitely arisen with regard to the Whitley Councils in Great Britain. My own answer to the question would be that the machinery we have in this particular industry does seem to

→ Counterveiling Power in Public Hands

me to protect the interests not only of the two parties to a dispute, but also of the general public, largely because of the character of the impartial arbitrators. I know that they are alive to their responsibility, but the public ought to know this; they ought definitely to be interested in these experiments and assert the public interest.

The newspapers commented recently on a photograph taken in London during the traffic strike a few months ago, of a sandwich man who bore the legend: "Did you have to walk? Join the Middle Classes Union." I do not know that it will be necessary in America for the indirect parties to industrial conflict to organize themselves thus definitely, although apparently in England such an idea has been taken seriously and an organization representing the public has been created. There is this much of suggestiveness in the idea, however, that as the public has been asked to organize at times for watching lobbying legislation, etc., so it might in some similar fashion compel the recognition of its interest in the development of means for securing industrial peace and order. In a representative form of government, political or industrial, it is safe to assume that the unrepresented party stands scant chance of having any votes when the roll is called.

Moreover, if the public would protect itself against being caught between the upper and nether millstones of industrial conflict, it must take care to protect freedom of speech and research in the colleges and universities; it must preserve some areas in which impartiality and temperate judgment can be cultivated. If it tolerates heresy baiting and the suppression of liberal opinions in higher academic institutions, it will have but itself to thank when it pays the penalty in the outbreak of class hostilities. Cranks there will always be, but they can be taken care of. The dragooning of opinion, particularly amongst teachers, can have but one effect, namely, to strike at the very basis of what we assume to be true Americanism and to vitiate the principle upon which progress in either political or industrial life must finally rest.

For this reason, to take only one concrete example, the public should lend its heartiest aid to the investigating of such problems as the stabilizing of the dollar instead of merely accusing manufacturers and merchants of profiteering and labor leaders of malicious conspiracy. Public fair-price investigations of alleged profiteering are commendable so far as they keep industry on its

good behavior and discourage unscrupulous business men and workers who might otherwise go on the loose; but they are evil if they are conducted simply as means for storing up a political capital and for making a show of activity in order to satisfy the demands of a credulous or hysterical public. The performances, for example, of one of these committees in Rochester, N. Y., recently, were not only a travesty upon the technique of public investigation of assumed evils, but also resulted in a vigorous come-back from manufacturers, labor leaders and responsible men charged with the duty of preserving law and order in industry.

Since after all the consumer is the public, what has already been said about the public applies to the consumer; but there may be some warrant for looking at the consumer's interest for a moment since some special developments of what might be called the consumer's attitude have been achieved. Nearly every other civilized country in the world has outstripped the United States in its development of the cooperative consumer's movement. We rank along with Turkey, I believe. It will be necessary for the American consumer to give much more attention to this phase of economics, not merely as a stabilizer of the cost of living, but even more as a training in group self-determination and in citizenship.

In the interest of organized as well as unorganized labor, it is incumbent upon the consumer to din into the ears of the workers that they are one-tenth producers and nine-tenths consumers; therefore, that to limit productive effort is wasteful and suicidal. This idea, however, must be qualified by a warning against the philosophy of production for mere production or profit's sake; which means, in other words, that the workers when they are being counselled to produce more, must be assured some control over the productive process, some adequate safeguards against occupational hazards (including unemployment). It will be useless to fight against the traditional limitation on output as unpatriotic or uneconomical unless there is some guarantee that the employer will not arbitrarily slash the worker's earnings when the labor market is full, will not pad the labor supply by a reckless policy of immigration or child labor, will not neglect to provide in some way for the workers who are displaced by machinery or will not fail to reward to the full the worker's increased output.

To this end the consumer must be thoroughly aware of the complex elements in efficient production. These elements we all

recognize as including education and technical capacity, discipline and interest in the job, the appeal to loyalty, pride and imagination, confidence, outlook, satisfaction of legitimate impulses for expression, just and secure rewards, a sense of responsibility, a sense of worthwhileness, genuine cooperation, efficient management, the elimination of frictional wastes, continuity of work, a steady labor supply to admit of legitimate business expansion and assurance that by doing his best the producer is not going to "work himself out of a job."

Now I contend that nearly every one of these elements in efficient production are amenable to education. I am not competent to pass upon all the details of vocational education, but it is apparent to any one who studies the subject of industrial unrest that what we need is not merely the vestibule or technical trade school, but a type of vocational education that will also train the workers in social perception and responsibility, including respect for a government of law.

The creation of a new idealism of service is the task of education which aims to insure a proper ratio of production to human needs, which will produce sound and fit goods while safeguarding the producer against exploitation. We need an education, vocational and otherwise, which will yield us at one and the same time wealth, joy in creative effort, and the sense of the commonwealth. That is the very best insurance for producer and consumer united as the public.

II

THE EMPLOYEE

ARTHUR E. HOLDER
Member Federal Board for Vocational Education, Washington, D. C.

Champions and advocates of vocational education are not surprised at the present economic unrest, neither are they disturbed or alarmed. They see in it an opportunity to develop more fully our nation's material resources and an opportunity to drive home the need of a better outlook on life for the nation's workers.

The bulwark of our nation is our millions of hard working toilers, those who toil by hand or brain. Upon these toilers the safety, the prosperity and the destiny of our country depends. The demands made by these millions upon the products of their own industry keep the motive power of the wheels of commerce and industry in action.

We, in the United States have had to share a part of the world's physical suffering due to the war; our mental disturbance is undoubtedly greater because of our national nervous temperament. At present, and for the last few months our undue and unnecessary excitement has bordered on hysteria. In fact, some of our public men have apparently lost their mental balance. Too many of our editorial writers indulge in lamentations and conjure up dangers that do not threaten. There is no need for such calamity howling or for constantly viewing things with alarm.

"God reigns and the government at Washington still lives."

We should pay no attention to the manufactured hysteria whether made in Germany or made in Wall Street. The psalmist wrote: "The wicked flee when no man pursueth."

The great mass of our people are still working hard and steadily —they are keeping their heads clear and their feet on the ground. A small proportion of them have been able to choose their vocations and like their jobs. Too large a proportion follow tasks which they have not selected, which they do not like and in the performance of which they naturally do not exert their best efforts. This is our real problem, and the cause of the most unrest. Too

many men and women are following tasks they do not like and when driven by the economic lash of necessity they balk, fret and rebel. They loaf on the job; if they can afford it they quit on the slightest excuse—sometimes they quit when they cannot afford it—they are in a constant state of rebellion. Social, moral and economic unrest is their unfortunate lot in life. The long and short of it is they hate their jobs, they dislike those for whom they work and they are an annoyance to those with whom they work.

Stannard Baker found this statement in a recently discovered manuscript of the New Testament. The Master remarked to a shoemaker: "Man, if thou knowest what thou art doing blessed art thou, but if thou knowest not thou art condemned."

What was true during biblical times is equally true now. Most boys and girls undertake tasks either because of a combination of their environments and circumstances surrounding them or because some one in authority has selected their work for them.

The great majority of our people have had no voice in their own industrial destiny, neither have they had a chance to select their life's work. In our present complex system of industry the problem is more serious than ever before. We have little or no system to aid selection and insufficient pre-vocational guidance. A small per cent of our youth who can afford it qualify for the professions, a larger number by luck or family acquaintance get into the trades, the largest group become special one-job operators, they either have to live on their wits or pick up blind alley jobs. Consequently our business, our morale, our nation's interests are not as progressive and prosperous as they might be, nevertheless with all these handicaps, and despite our haphazard gamble with industry in 1913, the year before the war, our neighbors in the United States, constituting less than five per cent of the world's population, produced twenty-four per cent of the world's agricultural products, forty per cent of the mineral products, and thirty-four per cent of the manufactured goods.

American labor increased the value of its production of manufactures one hundred and ninety-three per cent in sixty years. The per capita productive value per employe in 1850 was $1,064. This per capita production in 1910 had risen to $3,125.

With all our whining and grumbling these figures prove we have the cheapest and most efficient labor on earth because it is by far the most productive. Notwithstanding foreign propa-

ganda we can and do produce more and better commodities, we do live fuller and more contented lives, we do aim to conserve humanity and retain freedom.

Our schools and our teachers must have a fair, free chance. More money must be raised for their use. Teachers must be paid more wages. They should be encouraged to fight for themselves, then they can better fight for our children. Extend vocational education, encourage trade training, vitalize agricultural surroundings and home economics. Throw open the schools for evening discussions among parents. Encourage better acquaintanceship among all classes, beat down class consciousness with the higher ideal of social consciousness—it is more appealing, more satisfying, more economical and safer.

There are hopeful indications that our past apathy and indifference are disappearing and that many more men and women are now giving these educational problems better attention than heretofore. This in itself is most encouraging. When we get these educational subjects out in the open where they will be a matter of discussion of all our people we may rest assured that the ingenuity and the determination to achieve and excel which dominates the American character will stand us in good stead to solve the problem of unrest satisfactorily.

Vocational educators have the opportunity of all time in the hollow of their hands, they can make themselves indispensable to society, they can train the young to create and get a joy out of their creations, they can act as the great conciliators, the great mediators by getting local employers and employes to meet together and discuss local vocational problems.

The hope of the nation, the welfare of the race, the safety of humanity awaits the tactful leadership of our vocational advisers to lead us upward and onward.

Let me go back a little bit to some ancient history. Dr. Snyder, in his book which he sends me from California, had this displayed on the back. It is a bit from Roger Ascham's "Scholemaster," written about 1565. It is in the perfect Chaucer style:

> "And it is pity that commonly more care is had, yea, and that among very wise men, to find out rather a cunning man for their horse than a cunning man for their children. They say nay in word, but they do so in deed. For to the one they will gladly give a stipend of 200 crowns

by the year and are loath to offer to the other 200 shillings. God that sitteth in heaven laugheth their choice to scorn and rewardeth their liberality as it should. For He suffereth them to have tame and well-ordered horses, but wild and unfortunate children, and therefore in the end they find more pleasure in their horses than comfort in their children."

III

THE EDUCATOR

RUTH MARY WEEKS
Kansas City Junior College, Kansas City, Mo.

We talk today about the present labor crisis as though it were something quite definitely localized in industry, and not part and parcel of a world-wide social ferment; as though it were only a temporary check upon production and not a test offered by human nature under strain to all our social institutions.

During the war, men thought and felt and acted, not as they were in reality, but according to the greatness of the occasion. Ideals of personal, national, and international conduct; ideals of cooperation and social unity but dimly glimpsed by the prophetic dreamers of peaceful days, became or seemed to become, living realities, and the weaknesses of the human spirit which had hitherto impeded their accomplishment seemed to melt away like belated April snow in the sunshine of patriotic ardor. But now the stimulus of the war is gone; the social will is exhausted; the ideals that sustained us through the struggle have "made themselves air"; and there seems to be very little left upon the field to confront our reconstructive issues but human nature. And alas! it is a human nature that has failed to keep pace with the development of social institutions. * * * * * * *

We have developed an industrial system under which the employers must cooperate to secure the economies of large-scale production; under which labor must cooperate to maintain wholesome standards; under which labor and capital must cooperate to keep the industrial machinery lubricated and running without friction; and under which the public must cooperate intelligently and fairly with both capital and labor if the world is to be housed, clothed and fed. The dependence of man on man and class on class has increased a thousand fold. The importance of mutual forbearance and cooperation is plainly far greater than in any previous historical epoch. We pay for our advancement in civilization by a tax upon our social qualities. Yet, instead of meeting the new socialized system of production in a social spirit,

the parties to our industrial triangle display all too often a complete lack of social adaptability.

At the bottom of present economic unrest lies undoubtedly in large measure a high cost of living, due apparently not so much to profiteering as to an actual shortage of products—plus human nature. In spite of generous wages, labor is refusing to produce. Meanwhile, the pressure of war-time thrift being removed, the consuming public, of which the well-paid working classes now form a large proportion, instead of limiting their purchases in order to pass the scanty stock of manufactured articles around, have gone on a buying spree, outbidding each other and sending prices up like a rocket. With each rise in prices, there is a natural demand for higher wages. But until labor is willing to produce more abundantly and the classes with ready money are willing to buy more thriftily, until a more social and intelligent spirit obtains, the race between wages and prices will continue and the salaried and professional man will be ground between the upper and lower millstones of supply and demand.

Another factor in the present economic unrest is the discrepancy between the social cooperation in the process of production and our individualistic private management of industry. The old-line trade unionist has long been awake to this discrepancy, and has sought to impose upon industry the remedy of collective bargaining. Now, the unskilled worker, neglected by the American Federation of Labor, and left to the I. W. W.'s radical organizer, this vast body of unskilled labor has become at length aware of this same discrepancy and is dreaming, not of collective bargaining, but of the entire elimination of the employer, the taking over of industry by the manual laborers, and its ownership and operation by the working class. During the war, this discrepancy was in a great measure bridged. Spurred on by mutual patriotism, capital and labor placed themselves jointly under the direction of the government, and worked out together the best modes for filling government orders in record time. The lion and the lamb lay down together, and the idealist dreamed that a new day had dawned. But the rapid gains in power made by labor alarmed and aroused capitalistic spirit, and now that the emergency is over, reactionary business men are drawing together to make a last stand against labor unions, collective bargaining, and the whole movement toward democratic industrial control. Labor, on the other hand, flushed with recent victories, lays aside

the mood of conciliation for one of dictation and meets the onslaught of capital with a stiff front of equally class-conscious resistance. * * * * * * *

There is nothing new in this discovery that life is social while human nature remains individual; but the present crisis serves to show the damage which can today be wrought by this discrepancy. How then can we train our pupils so that human nature will catch up with social development; so that our institutions will not crack and strain under the resistance of men to the ideals they embody and the methods they demand; and so that the present economic unrest will terminate in progress and not destructive revolution? The answer to this is social education. But social education is not so simple as it sounds; in fact, few persons have any adequate conception of the meaning of the term. It is not something in which we can give a "course" and call our duty done; it is a spirit which must dominate not only our choice of subjects for the curriculum but our whole method of instruction and school administration. Social education means producing a man who can live in society. It involves first, training in the personal qualities needed for social living; second, training in the method of social life; third, development of social ideals; fourth, giving information as to the actual organization of society; and, fifth, furnishing the student with some historical perspective and with some understanding of the laws of human development by which real progress can be made.

Therefore, the cure for the present economic and social unrest lies not only in teaching the child additional facts (though additional facts are very necessary) and not only in developing greater technical skill (though greater skill and industrial resourcefulness are needed to give workers a feeling of industrial security). The causes of present economic unrest are not reached by trade education in the narrow sense in which it is too frequently interpreted, even by vocational teachers. And the cure for this unrest is not mere drill at the machine, but giving the child a social point of view and social habits. We must train our children so that social behavior will be habitual, subconscious, involuntary, instinctive, and not merely the self-conscious, artificial, temporary result of a stimulating crisis. We must get the social reactions out of the brain into the medulla oblongata and the spinal ganglia.

A strong movement is sweeping the country in favor of moral instruction. Purely individual morals are usually thought of.

But it is social morals we have got to teach; and the way to teach them is not to preach or give set instructions, but to make the individual student a conscious part of an interesting social unit and let him learn by experience how to get along there.

What are the qualities needed for social living? We could enumerate them by the dozen, but they are qualities which one does not acquire by talking about them. The way to learn self control is to get into situations like football games, where self control is hard and necessary, and to practice it. The way to get social consciousness and social vision is to become at the plastic age a part of a group whose members must cooperate and consider each other in performing some interesting work for the good of the whole group. Systems of self government are splendid socializers. They make the student conscious of his social relations: and team, staff, and committee work train to co-operation, open mindedness, and adaptability. The way to get initiative and a sense of responsibility is to have freedom of action given and responsibilities laid upon one. When I see one of those neat, proper and altogether lovely school magazines; when I scent the delicate aroma of middle age and chaperonage that distills from its pages, I sigh over a lost chance for social education. The trouble with all too many school teachers is that they think of the school paper or debate or play not as a means of education, but as an end in itself. They want it to be perfect; and they forget that it exists for the sake of the boy who may perhaps become more perfect by making what seems to the teacher an unsupervised mess of it. What is principally the matter with America, is that our last generation of students are now cutting their social eye teeth on industry at an advanced and unteachable age instead of having done it long ago on the inexpensive teething ring of student activities. They are learning to live in the midst of life, instead of in the school, where they would have smashed up no cosmic crockery but only some trumpery bits of academic dignity. So all the other social virtues, like keeping one's word, which is only another name for keeping one's contract, are best learned not from academic precepts, but from working with people, depending on people, and seeing what happens when contracts are not kept.

The methods of social life, also, such as group action, majority rule and obedience to leaders are not to be mastered in the abstract, but by actually working in such groups as debating and

athletic teams, play casts, the staffs of school papers, and the like. I believe that even capitalists sometimes wish labor would obey its own regularly constituted leaders. Bolshevist propaganda with its theories of class domination, is directed against majority rule, the very foundation stone of American government. Habituate the child to the acceptance of this principle as the only practical method of cooperative action, and you have nipped every budding Bolshevist. And finally, while social ideals can be formed through class instruction, through inspirational reading and historical studies, the most effective method of arousing a love of fair play, a sense of the right of each individual to equal opportunity, a belief in the value of each individual personality, and a refusal to treat a person as a thing or to use a human being as a mere means to any end (as labor has all too often been used in American industry), the most effective method of awaking such ideals is still through social cooperation.

You are probably saying to yourselves "I thought you were going to talk about the present labor crisis, and here you are discussing football." So I am! But football and all it stands for is so closely related to the labor crisis, for it is through such activities, self directed wherever possible, that the student acquires the habits necessary for social living, the qualities of social mindedness and cooperation which alone can bring human nature abreast of modern institutions.

If I were the head of a school, I should arrange by a per capita canvass that every student—not just the good athletes, good actors, good debaters, etc., but that every student should constantly be a member of some group engaged in extra academic work as nearly self-directed as possible. And if I were the head of a trade school, I should do this with double energy. Trade schools have, in my experience, largely lacked these socializing outside activities. Most class work in any school puts a premium on individual acquisitiveness rather than social cooperation, and practically all bench work is solitary. Of course, in some shops groups of students work together on a single problem; and when manual work is directed toward a social purpose, as in making articles for the school or the community, it has indeed a great social value, which is scarcely yet appreciated and very seldom taken advantage of by manual training and trade-school teachers. Nevertheless, nothing will take the place in socializing the instincts of lively student activities. To enlarge the imagina-

tion; to extend the social perspective beyond the limits of one's own class or one's own locality; to make labor and capital feel themselves part of one organic industrial whole, mutually responsible for the welfare of the dependent community; to arouse the community to a sense of responsibility for the conditions under which its necessities are produced; to convince the amateur thinker that the safe slow processes of evolution are surer in the end than revolutionary radicalism; for all this, of course, definite instruction in elementary economics, sociology and history are necessary. We have long tended in fact if not in theory to stress the practical and ignore the academic elements in trade instruction; and the present crisis cries aloud to us to incorporate such academic elements in vocational courses. But it also cries aloud for emphasis upon the far more neglected social side of trade-school life; and unless the creative social discipline of self-government and extra academic activities becomes a part of the life of every trade-school student, your graduates will be either meek subjects of autocratic domination (whether from the factory boss or the labor leader), or they will be agents of industrial war; and in either case, they will add to rather than subtract from economic unrest.

DISCUSSION

FRANK M. LEAVITT
Associate Superintendent of Schools, Pittsburgh, Pa.

The implication of the organization of this program is that the important problem under discussion can not be solved satisfactorily without the cooperation of the employer, the employee and the educator.

It is my purpose first to re-affirm that such cooperation is absolutely essential to the solution of our problem, and, second, to maintain that the best way to bring about this cooperation is to establish, in connection with the public schools, a **real** vocational guidance department, the central feature of which is an employment office, open to all young people under twenty years of age.

In discussing this question I may claim to speak from a somewhat unique experience. As a student of vocational guidance and as a lecturer on the subject for seven years; as an adminis-

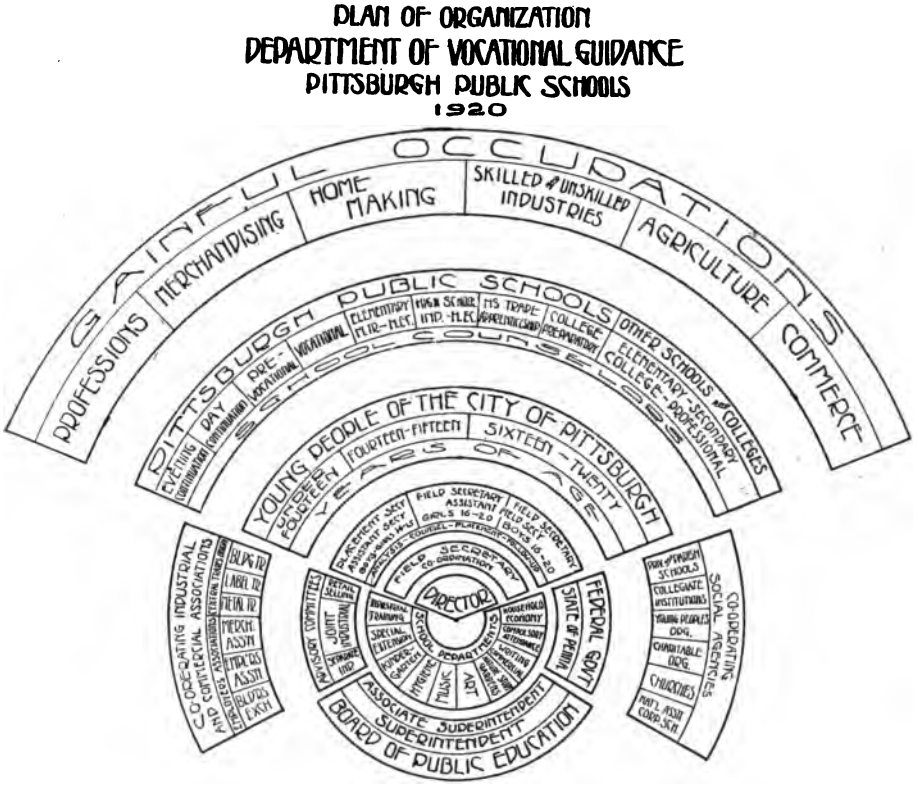
trative school official, charged with the development of vocational guidance and education in a large city school system; and as a representative of the Federal junior employment service under the Department of Labor, I am in a position to deal with facts.

May I say in passing, that the U. S. Employment Service has done and is doing valuable work in helping school systems to develop adequate vocational guidance departments. It was through cooperation of the U. S. Employment Service that the Pittsburgh Public Schools were able to establish, about a year ago, effective employment offices. I wish at this time to recognize the value of this cooperation. The work now is being financed entirely by the Board of Education, though we still have important assistance from the U. S. Employment Service.

If I had the time I could describe in detail the organization which has been developed in Pittsburgh for bringing together in cooperative action employers, employees and the school system. Instead I have provided a chart showing this organization of our Department of Vocational Guidance. We have a Director who is also a high-school principal, six placement and field secretaries on full time, who conduct the employment offices, and eleven vocational counselors on part time, one in each high school. The director has adminsitrative connection with every part of the school system, so far as vocational guidance and training are concerned.

The chart was developed by one of my ingenious assistants who has come in close personal touch with every phase of our work. In fact, he is the one man in the system who helps to coordinate the several school departments which are engaged in bringing together our schools and occupational life. From the chart, I trust, that you will be able to gather something of the details of our organization. I wish to present three different statements regarding it.

First, when one looks at the chart his impression will be that it is extremely complicated. Perhaps he will feel that it is too complicated to be really serviceable. My contention is that the chart is complicated merely because the situation itself is complicated and that one who attempts to solve the problem we are here discussing with the notion that a solution can be worked out along simple lines is doomed to disappointment and failure. The organization is competent to deal with a complex situation.



Second, the chart will show that the organization is made of sufficient prominence and is given sufficient authority to enable us to commandeer any and all of these resources that may be needed for the vocational guidance and vocational education of the young people of Pittsburgh.

Third, we have a sufficiently large force to maintain, a genuine and efficient employment and information bureau, which is something more than an office for getting positions for boys and girls who may seek its aid as they leave the school. Such genuine service is being done for the employers and for the young people themselves that we have reason for hope that we may ultimately bring about a situation in Pittsburgh where no intelligent employer will think of engaging employees under twenty years of age without first consulting our Vocational Guidance Department.

We now have vocational counselors who report one hundred per cent efficiency in placing the members of the graduating class either directly or through our office. We have approximately two hundred employers who consult our office first when in need of junior help. Most of these employers furnish us careful and detailed specifications as to the kind of help they require together with the opportunities which the position in question offers to the young employee. These employers give us ample time to find, and in some cases to train, the young people required. We have some "orders" a year in advance.

Our advisory committees composed of employers and employees are cooperating in many ways, notably in organizing classes for our night schools, in determining certain larger principles with regard to courses of study, finding suitable teachers and actually securing and enrolling the pupils.

A solution of the problems of social unrest is not to be worked out in one year. While it is only one of the factors in the problem, the securing of a right **start** for young workers is certainly one of the most important of such factors. It is necessary that young people enter industrial life with a much clearer conception of their duties as well as their rights; of the opportunities and limitations of a position; of the relation between work and wages; and of their responsibilities to their employers and to society.

For years I have believed that this could be accomplished most readily by having the educational authorities of the city supervise the entry of every child into occupational life as he leaves the care of the public schools. From the progress made thus far in the city of Pittsburgh I am confident that, within reasonable time, this dream may become an actual reality.

SECTION II

AGRICULTURAL EDUCATION

EFFECT OF THE SMITH-HUGHES LAW ON INSTRUCTION IN AGRICULTURE

Report of Special Committee presented by the Chairman

J. A. JAMES
University of Wisconsin, Madison, Wis.

When the Sixty-fourth Congress passed the Smith-Hughes Law and it was approved by the President on February 23, 1917: the United States government took another step in the direction of better agriculture. Its purpose was the same as that of the Morrill Act of 1862, which was to give the boy of the farm a training which would fit him for rural leadership, to give him an education for service in agriculture.

It was during the Civil War, the second great war in history that the Congress of the U. S. passed legislation which has made possible an Agricultural College in each state and the greatest of all national organizations for the development of agriculture. At that time but two States (Michigan and Maryland) had agricultural colleges which have survived to the present time. Yet it was the accomplishment of these institutions and of others which failed that gave Congress the concrete idea which was fostered into a great movement by the use of Federal funds and recognition.

It was on the eve of the greatest war of all time, "The World War" that Congress again gave financial support to another agricultural movement. The successes of a very few States in secondary vocational agriculture and the failure of a large number were put before them. Patterning on the successes of the few, we have the Smith-Hughes Law. Under the guidance of the organization which this law provided, we have made great progress in laying a foundation for future successes. Among the things that may be noted as results of the Smith-Hughes Law during the first three years of its operation are the following:

I. Nationalized Vocational Agricultural Education

The giving of moral and financial support to the movement by the government will mean as much as it did to the agricultural colleges, experiment stations and extension work. Where doubt existed in the minds of the people, the stamp of approval upon the work in agriculture of the high and special schools, has been given the greatest governmental authority. As one State supervisor said: "*It placed agriculture on the main track, instead of holding it on the side track.*"

While agriculture has been taught in the schools of many States, it was in many but general agriculture taught for one semester or for a year. Only in a few States of the North-Atlantic, East Central and Pacific districts was agriculture in the public schools given one-fourth to one-half day during each of four years. (Ind., Pa., N. Y., Mass., Minn., Wis., Cal., Mich., etc.) Only in these States were they approximating the vocational idea of today except in the special schools, State, District or County schools, of a few states.

With the adoption of vocational agriculture and receipt of Federal funds, the plans of every State provided from one-fourth to one-half time of the school day for either two or four years and this work was correlated with the home project. The combination of the school instruction and the home work approximating fifty per cent of the boys' instruction for the year. (Col., Kas., Mont., N. D., Okla., S. D., Cal., Nev., Ore., Ala., Tenn., Va., N. H., Conn.) This plan seems to predominate and at the present seems more likely to become the recognized form although several states give between twenty-five and fifty per cent of the school instruction time to agriculture and have the home work in addition. (Mass., Minn., Ohio, Ind., Ky., Pa.)

It is indeed a big advance from the one semester idea to the present one of vocational agriculture, with directed practice. This movement has shown that vocational agriculture under the direction of the Federal Board of Vocational Agriculture has found a place in the public schools of each State.

II. Universalized And Vocationalized Agriculture

The Smith-Hughes Act placed in every State a Board responsible for the development of vocational subjects including agriculture, provided a State Supervisor, gave Federal funds and assured

that this work should be developed according to vocational ideals of the day.

The question was asked: "Was agriculture taught in your schools prior to 1917 for vocational purposes as 'Vocational" is now interpreted in your State? But twelve States answered in the affirmative and twenty-nine States stated that the standards had been raised under the Smith-Hughes administration.

Ten States reported a State Supervisor of agriculture prior to 1917, and the State College of Agriculture furnished the man in several instances. Each State now has a State Supervisor.

About one-half of the States reported that prior to 1917, the State was giving funds to assist the development of secondary agriculture. In over half of these this aid was for special agricultural schools. (State, District, County, Farm Life, etc.) Stimulated by receipt of Federal funds the State legislatures of several States have matched the Federal funds and assured progress. (Oregon, R. I., Tex., Ark., Ill., Colo., Okla., S. D., Ala., Iowa, N. D., Utah, Wash., W. Va.)

That all the States are now developing vocational agriculture under competent Supervisors, who have vocational ideals and with additional State funds matching Federal funds, is indeed a great advance for three years.

III. Emphasized the Responsibility of the High School for Agricultural Education

A few States in the past quarter century have attempted to solve the vocational agricultural problem through the organization of special schools of agriculture. These have been schools for farmers and home makers and have been the State, District, County types. Dean Davenport of Illinois has been one of the leading opponents of such a plan and has consistently held that the place for agriculture is in the local high schools. It is gratifying to find that with one exception (Vermont) every State has mentioned the high school (rural, consolidated, township, county, academy, etc.), as the school which will receive the Smith-Hughes funds. Many States mention no other type of school.

Sixteen States stated that the special schools of the above types would receive Federal funds. But one State confines the aid to these schools and in only one State were the special schools not allowed Federal funds.

With this recognition it seems certain that the high school must become the vocational school of the rural sections.

IV. Made Sure That Agriculture Should Function at Home

The home project has become a part of the agricultural work when agriculture is taught as a vocational subject. The requiring of six months of directed practice in agriculture is the keystone of success for agricultural teaching. Without it vocational agriculture would fail. With this required we may look for future success.

One of the most discouraging conditions of the years 1914-17 was the slowness with which the home project was adopted as a portion of the agricultural work. In some places where adopted it was no different from the Boys' and Girls' Club work. In others it deteriorated into the smallest of tasks with but little educational value or interest. Our questionnaire shows that prior to 1917, but nine states required home projects of all pupils and the percentage of success reported varied from ten to ninety-eight per cent. Thirty-five States reported that the home project was disregarded or at best encouraged. Today in every State we find the requirement of directed practice for six months is in operation. We are encountering difficulties but we are advancing.

Of the nine States reporting the home project required, six are in the North-Atlantic group (Mass., N. Y., Penn., N. H., N. J., Conn.), and three are in the East-Central District (Wis., Mich., Ind.). Density of population and economic conditions make the agricultural problem greater in these sections which probably accounts for the fact stated. N. Y., Mass., N. H. and Ind., report the greatest success with the home work.

Time standards for directed practice or home projects have changed with the adoption of vocational ideals. The home project of five to ten acres of corn is replacing the one-fourth to one acre. Several States have placed minimum time standards for home project work (Illinois, 260 hours; Michigan, 144 hours; Minnesota, 300 hours; New Jersey, 450 minutes per week for five days per week and six months per year; Colorado, 320 hours and Virginia, 120 hours). All States have provided for close supervision and reports.

A difference is growing between the standards for Boys'

and Girls' Club and directed practice. The projects for directed practice are reported as greater in extent, supervision is closer, more closely correlated with school work, more emphasis on economic values, more thoroughness in preparation for the work, and the work is more systematic. In only one State was the report given that home projects were the same as the club work—(Washington.)

It is hopeful to note that in practically all States the reports indicate that the county agricultural agent and the vocational teacher are cooperating. In other words each is finding that he has a field of labor and the conflict of duties that might result is not materializing. Each is assisting the other and they are working harmoniously in the solution of a common problem, looking to the improvement of rural conditions.

Prior to 1917, successful project work was practically impossible because the men were not hired to supervise the projects during the summer months. But six states reported that the teachers of agriculture were hired for eleven or twelve months. In nine other states where special agricultural schools were organized the teachers of these schools in some cases were kept the whole year but high school teachers of agriculture were not kept. Today we find our vocational teachers on the job for the full year. We now have our opportunity to make the project a success.

Summing up this point we can say that the project or a substitute is now a requirement, it is different and greater than the average club project, adequate provision has been made for efficient supervision during the whole season. This new element of the agricultural school will become a success in every State because a small number of States set a worthy example for the whole organization to copy.

V. Enlarged the Scope of Agricultural Instruction

The special schools are the only ones that made a practical success of the part-time dull season classes of three weeks to four months in extent and held during the winter. This has been one of the strong points in favor of these institutions. These institutions have given organized instructions to a group of young people and in many cases have followed them into their homes for the summer work.

Prior to 1917, Indiana and Minnesota and a few isolated cases in other States were the only instances of this work being done in the high schools. In most cases all dull season courses were of the extension school type and the work was done entirely by the Smith-Lever workers and it consisted largely of lectures with few demonstrations and no follow-up work. Practically no evening instruction in organized form had developed. This type of work will probably not be developed extensively at the present time and yet in the past three years some splendid work has has been done (Iowa, Wis., Cal.). I have no doubt that the future will see much greater emphasis placed on such organized instruction, especially in the more thickly populated sections of the country. It is not the work of an inexperienced teacher but of one who has a following. There is a growth in this work and several States of the North Atlantic and East Central Districts report advancement in this line and always the report has shown very successful work.

It is also interesting to note that vocational agriculture is not for the rural community alone but is being taught in many of the large cities.

I personally believe that we are to experience great advancement in the scope of agricultural education and that within a decade the part-time dull season and evening classes for agriculture will be found in every State.

VI. Demanded Trained Teachers of Agriculture

Less than a dozen States reported that prior to 1917, the Agricultural College graduate was the minimum of technical preparation. However when asked to name the greatest weakness of the agriculture of their State prior to 1917, the most common weaknesses mentioned were the following in the order of the number of times suggested:

a. Poor technical and professionally trained teachers.. 15
b. Lack of practice in agriculture—Theory only—Text-book only..... 13
c. No correlation, poorly organized..... 10
d. Lack of vocational viewpoint..... 8
e. Lack of supervision by the State..... 8

A. Teacher Training Required.—It was indeed a wise man who placed into the Law the requirement that the training of

teachers of agriculture must be begun by June 30, 1920, or the State would lose all vocational as well as teacher training funds. Prior to 1917, only fifteen States reported that they were training teachers of agriculture technically and professionally. Twenty-nine States reported that they had no department of teacher training in the College of Agriculture. In eight States it was reported that the Normal Schools were training teachers of agriculture in courses ranging from one to four years.

From this unsatisfactory condition we have emerged and today all the State Colleges of Agriculture have been designated as teacher training institutions for teachers of agriculture. Only two States have reported Normal Schools designated (Wis., and Tenn.). In one of these the State Supervisor reports that the Normal School has been eliminated and in the other a four-year standard will go into effect at the end of the present year. Several colored colleges have also been designated as teacher training institutions.

Today thirty-five States report that the College of Agriculture has a department which has charge of the training of teachers of agriculture. Seven report none, but that the teacher training is done in a College School of Education in the University of which the College is a part. In seventy-five per cent of the States the College of Agriculture is solely responsible for teacher training in agriculture. The Smith-Hughes has been responsible for the development of departments of agricultural education, rural life or similar departments covering this field and reports show that today there are three times as many men in such departments as the maximum prior to 1917. This is indeed a wonderful development.

B. Growth of Departmental Courses.—In practically every department there has been a development and enlargement in the number of courses.

C. Content of Teacher Training Work of a Professional Nature.—In training teachers for vocational agriculture there seems to have come a break from the academic ideals of the past. The average amount of professional work is about ten per cent of the total with a maximum of fifteen per cent. This is an entire change from the ideals of many colleges and schools of education where twenty to twenty-five per cent of the course or a maximum of thirty or more credits were required for a teacher's certificate

in agriculture. The tendency seems to be also towards utility courses in education or what are called in various institutions, teachers, departmental or special methods courses. These courses deal with the specific problems of the vocational teacher in his agricultural environment and not in generalities. The tendency seems also to cut down the amount of psychology and general education courses as foundations for the special methods courses. More required professional or teacher training courses are being developed in the Colleges of Agriculture.

D. Provision for Supervised Teaching.—Teacher training institutions for agriculture have made a real contribution to the problem of supervised teaching. Teachers are being trained in the atmosphere of the vocational school. Apprentice teaching as found in New York State is finding a place in other States and five in the North Atlantic States report the use of that plan. Where Agricultural Colleges have Schools of Agriculture or Preparatory Schools with classes in agriculture, these are used for observation and supervised teaching. At least twenty States report the use of local high schools for observation and teaching. The Ohio plan which was recently given notable recognition in a circular from the Bureau of Education has been or will be adopted by several States according to the reports. Rehabilitation students are also being used for this work. Some of these methods have advantage over others but the significant point is the fact that practically every State will have some form of supervised teaching for teacher training if not already provided in one of the above ways.

E. Farm Experience for Teachers.—Is it possible to give adequate farm experience to the prospective teacher of vocational agriculture as is suggested for trades and industries? Several plans have been tried but with little success. It is evident that the prospective teacher must have farm experience but in most cases this must be obtained before entering college or part may be obtained during the summers or by staying out of college a year or more.

F. Teacher Training in Service.—Never has the work of teacher-training been emphasized as it is today with teachers of vocational agriculture. Teacher training in service is an important part of the work. Two States report that this work was begun as early as 1913 (Ind. and Wis.). Two others began the work in 1914 (Mich. and N. H.). Many began it in 1917

or 1918. Teacher-training in service consists of a combination of the following:

a. Frequent visitation.
b. Local, district and State vocational conferences.
c. Summer courses.
d. Extension courses.
e. News letters and publications.
f. Correspondence.

The work is being done by the following groups of workers:

a. State Supervisors..... 14
b. Teacher training departments..... 11
c. Cooperation of the above..... 8
d. Not reported..... 15

Greater emphasis will be placed on this phase of work as vocational work develops. We are only breaking ground in it at the present time.

SUMMARY

When we view the accomplishments of the first thirty years of agricultural college development and then the wonderful development in the next thirty years we are amazed at the greatness of the accomplishment. Now turn and view the changes that have come in the short period of three years under the Smith-Hughes Law. We cannot but be amazed at the effect of the Smith-Hughes Law on the teaching of agriculture in this country. It opens for the young men of today the greatest of possibilities.

(Signed) J. A. JAMES,
Chairman.
Ray Fife,
Z. M. Smith,
H. L. Kent,
Cora I. Davis,
B. M. Gile,
M. F. Miller,
Louisa Stanley,
Aretas W. Nolan,
Harold B. Shinn,
G. I. Christie,
Committee.

DISCUSSION

J. D. BLACKWELL
State Director of Agricultural Education, Texas

The effect of the Smith-Hughes Law on agricultural education in the South has been very marked. Not only has it had its effect on the elementary, rural and high schools, but upon colleges and upon education in general.

Effect on Elementary Education

While general agriculture has been a required course in all elementary schools in some of the Southern States for eight and nine years, it has failed to function in the lives of the pupils. With the passage of the Smith-Hughes Law has come the realization that our system of education in the elementary grades has been inadequate to meet the demands of the elementary pupils. This has led to a reorganization of all subject matter from the standpoint of the needs of the pupil. In a number of States, bulletins outlining the subject matter in general agriculture have been prepared.

Effect on the Rural High School

No Federal legislation has aided so much in the consolidation of rural schools as has the passage of the Smith-Hughes Law. Rural communities have been made to see that schools must be consolidated in order to attain the maximum efficiency. Not only has the passage of this law effected consolidation of rural schools, but it has done much toward making the school meet the needs of the community as well as the needs of the individual pupils.

Mississippi reports 600 consolidated schools in which vocational agriculture is now being taught in a practical way. Prior to the passage of the Smith-Hughes Law, no agriculture, other than general agriculture in the seventh grade was taught. Kentucky reports five per cent better attendance and an increase in enrollment of fifteen per cent due to the introduction of vocational work. Texas reports that vocational agriculture has been successfully introduced in a large number of rural high

schools. In fact, practically half of the seventy-six schools teaching vocational agriculture are rural high schools. Georgia reports that the passage of this law has stimulated interest in education in rural communities.

Effect on Secondary Education

The effect of the passage of the Smith-Hughes Law has perhaps been more marked in the secondary school than in any other type of school. Among the effects given in the reports of the Southern States, the following are most noticeable:

1. The high school course of study is being based to some extent, upon the needs of the pupil from the farm instead of on college entrance.
2. A larger per cent of the pupils enrolled are being kept in school.
3. Agriculture has been changed from a science course to a vocational course.
4. The home project has been substituted for the school farm.
5. The amount of time devoted to agriculture has been doubled.
6. Methods of teaching agriculture have been radically changed.
7. Agriculture is now being correlated with the past experiences of the boy.
8. There has been a complete change in the content of the subject matter.
9. Agricultural courses, other than those in schools receiving aid, have been improved materially.
10. Some States have discontinued the district agricultural schools.
11. The employment of teachers on the twelve months' basis has been made possible.
12. Salaries of agricultural teachers have been doubled.
13. Agricultural work has been standardized throughout the South.
14. Each of the southern states now has from one to three supervisors.

Effect on Agricultural Colleges

One of the far-reaching effects of the passage of the Smith-Hughes Law on agricultural colleges is that college authorities have been made to realize the necessity of training teachers of agriculture. Along with this has come the realization, on the part of the agricultural college student, that the teaching of agriculture offers real opportunities. Colleges have also come to realize, as never before, the need for a broad, instead of a highly specialized training. Practically all agricultural colleges have established Departments of Agricultural Education in which are offered winter, as well as summer work. With the establishment of Departments of Agricultural Education has come the change of methods of teaching in the college. In many agricultural colleges for whites, and in all such colleges for colored, there has been a complete reorganization of courses of study.

Effect on Education in General

The introduction of vocational education into southern schools has been due largely to the passage of the Smith-Hughes Law. With the introduction and standardization of vocational education has come a change in viewpoint on the part of educators. Just how to make the course of study meet the needs of the masses is the questions uppermost in the minds of many leading school men. Naturally, a sentiment for vocational education has been created. With the passage of this law has come an increase in salaries of vocational teachers which cannot but have its effect upon the salaries of all teachers.

TEACHER TRAINING IN SERVICE FROM THE STANDPOINT OF THE COLLEGE TEACHER TRAINER

W. F. LUSK
Professor of Agricultural Education,
Cornell University, Ithaca, N. Y.

Regardless of who else may be engaged in teacher training in service, a fair share of this work must fall to the man to whom is assigned the task of preparing the college student for teaching vocational agriculture. Otherwise he lacks proper touch with the problem with which he is dealing; he has no true basis for passing judgment on his own work to bring about needed modifications, and his progress will likely be away from the practical and toward the theoretical. A teacher training job which lacks organic connection with the field for which it is preparing teachers is fundamentally on a wrong basis.

The ideal plan for teacher training would assign two men to the work. These men should alternate preferably by terms or semesters, between training in service and class training. One man may handle this work by giving alternate terms or semesters to field and classroom work provided the classroom work can be met by half-time service during the regular school year. If classroom work must be carried throughout the school year the class work may be consolidated at one end of the week and field work done on the days thus freed from class room duties. There are, however, obvious objections to the last time division.

The teacher trainer should deal in the field in general with the product of his own department, and particularly with those who are engaging in their first teaching work. The principle work should be directed toward those who are acquiring their first year of experience. Embarrassment might easily result from attempting to deal with the product of other institutions except where suitable arrangements have been made by the State Supervisor with such teachers in advance of visits by the teacher trainer. Generally the time of the teacher trainer in the field may be fully occupied in the work with his own product.

The teacher trainer's work should be limited to problems dealing with the technique of teaching. The authority resting

with the State Supervisor and lacking in the teacher trainer places administrative duties strictly with the first and outside the circle of activities of the latter person. He should not be required to deal with school officers in an official capacity.

The average agricultural college graduate enters upon the teaching work with much enthusiasm for the vocation of agriculture and with a strong interest in the subject matter which he is to teach but true professional spirit is likely to be weak and his professional conceptions rather inadequate. This is to be expected as he is bound to reflect to a considerable extent the sentiments of the instructors under whom he has obtained his knowledge of technical subject matter. Some of these instructors may even encourage contempt of the professional point of view of teaching. The limited contact of the teacher training department with the student during his college course should be supplemented by work with this student after he enters upon his duties as a teacher if a professional spirit is to be developed. One method available for this work is based upon assigned readings of professional books, bulletins and periodicals. Reports should be required, under the authority of the State Supervisor, which should set forth the reactions of the teacher to the assigned readings. In general these reports should be followed up by assigned problems involving applications to the particular teaching problems of the instructor. A year of directed study of professional literature pointed toward applications to the actual job ought to go far in developing professional spirit.

On visits of the teacher trainer to the men the class room practices of the teacher should occupy his attention. Constructive criticism of personal habits, questions, lesson plans, selections of subject matter, use of objective materials and other matters pertaining to the technique of teaching should be his concern. No inspection duties should be involved unless failure of the school officers to meet State requirements interferes with proper teaching. In this case the deficiencies should be reported to the State Supervisor, upon whom the responsibility for securing changes rests.

In some cases agricultural departments are located in sections of highly specialized farming. In such cases the greatest need of the teacher may be, help in subject matter. Subject matter specialists, selected from subject matter departments and directed by the teacher training department may well be

sent to such teachers and to any others demonstrating weakness in subject matter.

The teacher trainer should attend and participate in the conferences of the teachers of agriculture whether they be State or sectional. At these conferences his contribution should be in the line of methods of teaching. The contact with groups of teachers, the free and full discussion which usually characterizes such conferences may make them even more valuable to the teacher trainer than to the agricultural teacher.

Throughout the field work the closest touch should be kept with the State Supervisor. Teachers to be visited and time of visitation should be settled in conference. The teacher trainer should have the benefit of the supervisor's observation and judgments with respect to the output of the teacher training department.

In many States it is the practice of the Supervisor to make a written report to the teacher after each visit covering criticisms and suggestions. This practice should be observed likewise by the teacher trainer. Copies of all of these reports should be filed with the teacher concerned, with the State Supervisor and with the teacher trainer. This in connection with frequent conference will maintain unified and intelligent effort on the part of the last two parties in dealing with the teacher.

IMPROVEMENT OF TEACHERS IN SERVICE

J. D. BLACKWELL
State Supervisor of Agricultural Education, Texas

Before discussing the methods of improving teachers in service, it is well to think of the need for improvement. These needs may be listed as follows:

1. Teachers are young and inexperienced, many of them being just out of college.
2. Many agricultural college graduates have had little professional training.
3. Some teachers of vocational agriculture have had the professional training but lack in the technical training.
4. Vocational work has created many new ideas relative to teaching which need constant explanation.

Since it has been suggested that the writer limit his paper to the improvement of teachers in Texas, the exact plan as is being carried out will be given.

Improvement by Monthly Supervisory Visits

Monthly supervisory visits are made to all schools teaching vocational agriculture for the purpose of giving general supervision and suggestions as to methods of teaching. By general supervision is meant such work as checking up the library and laboratory equipment, examining note-books, conferring with teacher relative to subject-matter being taught, and giving advice as to the organization of the work from a vocational standpoint. Under methods of teaching may be included that portion of the work formerly carried on by the itinerant teacher training men of A. and M. College. At present, the A. and M. College is offering a course in supervised practice teaching which is being supervised by the State Supervisors. The course consists of ten distinct study-units based on two texts: "An Introduction to High School Teaching", by Colvin, and "A Brief Course in the Teaching Process," by Strayer. The study-units include:

1. The Lesson Plan.
2. The Question as a Method of Instruction.

3. The Recitation.
4. Supervised Study.
5. Adding New Knowledge Through Inductive and Deductive Teaching.
6. Adding New Knowledge Through Illustration and Demonstration.
7. The Drill Lesson.
8. Class-room Management.
9. Eliminating Waste in the Class-room.
10. A Study of the High School Pupil.

In addition to a study of the units listed herein, the following suggestions concerning lesson plans are given:

1. Fifteen approved lesson plans will be required.
2. Plans submitted are to have actually been used in class.
3. Plans submitted should represent your best efforts.
4. Plans are to be for agricultural lessons.
5. It is desired that you include in your number of plans, the one used on the day you were visited by a supervisor.
6. Plans should be submitted in the form in which they were prepared preceding the lesson.
7. Since an agricultural class will have a variety of lessons, there should be a variety of plans submitted.
8. Recitation plans need not be limited to the development lesson since the recitation tends to become monotonous when the same type of plan is used continuously.
9. A lesson that is not preceded by a plan is haphazard.
10. The following outline may be used to advantage in making a lesson plan:
    a. Larger problem of which this lesson is a part.
    b. Particular aim in this lesson.
    c. Chief data and sources.
    d. Assignment,—relation to pupil's experience.
    e. Points of difficulty.
    f. Pivotal questions for probable class use.
    g. Logical outline of subject matter.
    h. Teaching outline or plan.
11. The lesson plans should be numbered in consecutive order, as they are submitted.

12. A carbon copy of all lesson plans should be kept in your files.
13. Plans and study units should be distributed throughout the school session.
14. All work must be finished by May 15th.
15. Converse freely and frankly with the supervisor.

After each visit to a teacher who has enrolled for the supervised teaching course, a report is submitted to the Department of Agricultural Education. This report includes a conference report on study units in which the supervisor expresses his opinion as to whether or not the teacher is grasping the leading points of the study units, and whether or not the teacher is applying the principles of the study units to the lessons which he is teaching. A report on the lesson plan is also included. This report shows whether or not the teacher used a definite lesson plan on the first day visited by the Supervisor and the results obtained. The Supervisor assists the teacher in making a lesson plan for the second day and remains to see it put into execution. This lesson plan is in turn submitted for credit. The teacher's strong and weak points are also reported, as is also a statement as to the specific help rendered by the Supervisor, and recommendations. Occasionally the Supervisor teaches a class to demonstrate a point.

In this connection it may prove of interest to mention briefly the relation which exists between the State Supervisors and the teacher-training staff of the Department of Agricultural Education. Monthly reports are exchanged. Approved monthly reports submitted by teachers are also referred to the Department of Agricultural Education to be used by the methods classes. All bulletins and report blanks are prepared by the State Supervisors. A monthly news letter is published by the College, but contains notes by the State Supervisors. Charts and slides are sent out by the Department of Agricultural Education. Four conferences are held annually for all vocational workers.

Improvement Through the Summer School

A six weeks' summer school is held each summer by the Agricultural and Mechanical College. All teachers who are not agricultural college graduates are required to attend. Both

technical and professional courses are taken. A two weeks' course which all agricultural college graduates will be required to attend may be given this summer. Only professional work will be offered.

Conferences

A two-day conference for all teachers of vocational agriculture is held in connection with the summer school. A conference is also held in connection with the State Teachers' Association each year. At these conferences such matters as require the attention of all teachers of vocational agriculture are discussed.

Community Activities

The following community activities are stressed:

1. An agricultural survey of the community. The results of this survey are used as a basis for the work to be undertaken. It is therefore evident that such survey should be made prior to the opening of school.
2. Live-stock shows. A great deal of improvement of teachers in service has been brought about through this means. Teachers become enthusiastic over such shows and as a result much self-improvement is accomplished.
3. School Fairs. A large number of schools teaching agriculture have held school or community fairs during the year. Such fairs tend to create an interest in agriculture throughout the community. As a result the teacher of vocational agriculture is compelled to take steps toward improving himself.
4. Agricultural contests for the purpose of selecting representatives to the Live-stock Judging Contests held annually in connection with the Southwestern Live-stock Show at Fort Worth and a general contest held annually at A. and M. College in connection with the Farmers' Short Course tend to give the State Supervisors an opportunity to be of service.

Office Supervision

While it is impossible to estimate the amount of improvement of teachers in service, which may be done by State Supervisors from the office, it is evident that a great deal of improvement may be brought about through a careful consideration of the monthly reports submitted, and through general correspondence.

SOME ESSENTIALS IN TEACHING FARM SHOP WORK

F. THEODORE STRUCK
Associate Professor Agricultural Education, Pennsylvania State College

Splendid progress has been made in vocational agricultural education in several States during the last three years, but if we examine the teaching practice in farm shop work we still find a multiplicity of aims or purposes. Some people do not yet see the fundamental differences between "manual training" or "manual arts" pursued for purposes of general or liberal education, and farm shop work as a part of vocational agricultural education. The practice still obtains of giving toy-making, furniture making, and small models in many schools whose purpose is to give vocational agricultural education.

The keynote for proper practice is given by Mr. Hawkins when he says that "vocational agricultural education must be suited to the particular needs of the specific communities." The best answer to the question of what repair and construction work should be given is inevitably found by a study of what kinds of repair and construction work are performed by the successful farmers of the region. With this thought in mind surveys were made last year, through the pupils pursuing vocational agriculture in every community in the State of Pennsylvania in which vocational agricultural education was given. The surveys made pupils, parents and teachers alive to the local situations; they revealed the exact nature and extent of the kinds of agriculture carried on; they brought out the specific kinds of repair and construction work that were performed by the successful farmers of the community.*

Detailed information was secured from 400 farms* distributed, for practical purposes, at random over the State. It was found that seventy per cent of the farms were general farms, twenty-two per cent were dairy farms, four per cent were truck farms, two per cent were fruit farms, and there were less than one per cent each of poultry and stock farms.

* A study was made only of farms that were rated as "fair" or "good" by the supervisors of agriculture since it is the practice on the "successful" farms that should determine the validity of subject matter in agricultural education.

The results show furthermore that in Pennsylvania fourteen per cent of the better farms have forges; thirty-one per cent of the farmers use concrete, forty-eight per cent "fit" their hand saws, and one-fifth of them use taps and dies. With this and other information at hand it becomes relatively easy to select subject matter that is alluring to pupils and that "leads on" in a tangible way to more productive agriculture and happier rural living.

Farm shop work should not be amateurish in its character. It should not be thought of as the product of a "Jack of all trades" since this implies that there is a lack of mastery.

Farm shop work is, or should be, a phase of scientific agriculture, and as such should measure up to the requirements obtaining in good farm practice.

Farm shop work should be placed absolutely on a project as distinguished from an exercise basis. Probably traditional practice in schools of engineering, and in manual training are responsible for the fact that the exercise method is used by some teachers of farm shop work. The disadvantages of the latter method are so evident, and the pedagogical and psychological advantages of the project method are so obvious to those acquainted with the home-project method in agriculture that nothing further need be said regarding it.

The skills developed in farm shop work are after all but a minor though an essential part. It is the original purposing and planning, the selection of tools, materials and methods in the light of relevance to the purpose in mind, the carrying out of these thoughts in acts, and the judgment of the entire purposeful activity that are most valuable educationally.

Farm shop work cannot well be on a so-called logical order according to the various tools used. It stands to reason that there are certain tools with which skill should be acquired. When work is placed on a project basis and the projects are well selected there will be provided practice with all essential tools, not in a formal, deadening, totally artificial sequential order, but in the order demanded by the conditions and character of the work in hand.

Neither can farm shop work be arranged on the basis of a given material to be used. Do not limit work one year to wood, another to iron and steel. We should much prefer to see the work placed on a pure project basis—let boys use the tools and

the materials that the job calls for. Let us do away as far as we can with "cold storage" methods of education.

There has been in the past, too much of a tendency to limit the projects undertaken in farm shop work to such as can be carried on within the school building or plant. It will often prove highly desirable for teachers to take their classes "out on the job" where the boys may get first hand experiences with concrete, wood, and other materials under conditions quite different from those that exist within the school building.

FARM SHOP WORK FOR HIGH SCHOOLS

L. M. ROEHL
Supervisor Farm Shop Work, Cornell University, Ithaca, N. Y.

At a meeting of the teachers of agriculture and farm shop work of the high schools of New York State which are operating under the Smith-Hughes law, an attempt was made to define farm shop work as applied to a course of study and work for schools. As a result of the light of over sixty minds being focused on the subject, the following definition was decided upon: Farm shop work shall consist of teaching the farm boys how to do the ordinary repair and construction work which arises on the farm with such tools and equipment as the average farmer may reasonably be expected to have.

It may be noted in this definition that two distinct lines of work are indicated, viz.: repair work and construction work. Inasmuch as most farmers spend more time at doing repair work than construction work, it seems logical and wise to anticipate the repair experiences which the farm boys will ultimately encounter and teach how to meet those experiences by having similar experiences at school in the farm shop course.

Most farm repair jobs may be classified under the following heads: metal working, harness repairing, rope work, and belt lacing.

A very thorough course in farm metal repairing may be offered in a farm shop course without the use of a forge and anvil. The course may include work with hack saw, vise, files, taps, dies, metal drill, grinder and an inexpensive soldering outfit. Every farm boy may well learn to saw a piece of metal to line to given dimensions with a hack saw without breaking the blade of the saw or breaking out the teeth.

The vise is the logical tool to aid in doing light riveting and as a riveting exercise the removal of worn or broken sections from a sickle section bar and neatly riveting new ones in place is suggested.

Most filing operations require a vise to hold whatever is being filed. Each student in a farm shop course should learn to file a piece of metal to given dimensions of length, width and

thickness. A key to fit a keyway in a shaft and a drive pulley might be suggested as a filing exercise.

Every boy taking a farm shop course should learn how to sharpen saws. Most farmers have three kinds of saws: the hand crosscut, the hand rip saw, and crosscut timber saw. Work on saws should be extended to include each boy's bringing all the saws from home and working on them until they are in good cutting condition. Work on saws should be extended throughout the course as too close application is apt to become tiresome and discouraging.

An auger bit file should be a part of each farm shop equipment and one farm shop exercise should be the sharpening auger bits of the home farm tool kit.

Another shop exercise which each member of a class of boys should experience is threading bolts and tapping nuts with an inexpensive set of taps and dies including at least six of the more common sizes.

In manufacturing shops where the quantity production is the aim, a power-driven drill press is the method employed for drilling holes through metal. That this method is employed in shops and is there the right method does not make it the right for the farmer. The small amount of drilling which he will ever do makes the power driven press too expensive. In the farm shop course in a high school the boys may be taught to drill holes of given sizes at given points in at least the following ways: drill and carpenter's brace; chain drill; breast drill; and hand drill press. If the student learns these methods it will be an easy matter for him to extend his experiences to power driven methods provided circumstances permit.

To have an outsider grind the school shop tools is a grave mistake. Each boy should be taught how to keep the edge tools with which he works in good cutting order by use of such tools or foot power grinders as are designed for and used by farmers. In addition he should bring chisels, plane bits, hand axe, scythe, etc., from home if they need attention and be taught how to sharpen them by actually doing it at school under the guidance of an instructor.

Another type of repair work which might well be in the farm shop course is that of soldering. With a blow torch, soldering copper, flux and a bar or wire of solder, the members of a farm shop course should do light repair jobs such as soldering and

patching a hole in a pail, soldering up a seam in a pail or can, and do other simple sheet metal repair jobs.

Harness repairing is another distinct type of repair work which should be part of the farm shop courses. Harnesses consist principally of straps and connections. The straps break or wear through at points where they connect to the metal parts. Broken straps may be repaired by stitching or riveting, or both. Stitching calls for a knowledge of making a stitching thread, and the making of a harness thread and the stitching of straps thus logically become farm shop exercises. Whenever possible students should bring work from home which needs repairing and do that work at school. Riveting machines for riveting harness parts with tubular rivets are to be had for prices within the financial reach of every farmer, and with such a machine a neat, workmanlike repair job can be done by members of a high school class. All light straps may be thus repaired. Tugs and traces may be repaired by use of metal trace splicers being riveted in the tugs or traces and the edge of the tugs or traces sewed up or by linking together two hame clips with a link of a chain and riveting one clip to each broken end. Traces, when torn out at the cockeye, may be repaired by linking a wrot concord clip to the trace chain and riveting neatly onto the trace.

There are many patented harness repair parts on the market. Each student should become familiar with their application.

Farm shop courses in the high schools should put an end to the hay wire method of lacing belts. Students may learn how to lay out the holes for a belt lace on a piece of cardboard and lace it with a cord or shoestring, but having learned how, he should be given a piece of real belting and have actual practice of lacing it in at least three ways: with a rawhide thong, with a metallic wire belt lacing and with the patent clips made specially for that purpose. The bringing of a belt from home should be encouraged.

In offering rope work as a part of farm shop course, extreme care need be exercised in selecting exercises which will be of use in the farming operations. It is far more desirable to have a few of the more useful knots at one's finger tips when needed than to have such a hazy notion of a great many that they have to be looked up in a book. Every farm boy should learn how to splice a hay fork rope. He should be able to finish the end of a rope in at least two ways: one with a wall knot and crown

provided he wishes the end to be rather large, and the other with the crown and end splice if he wishes the end of the rope to be practically the same size as the standing part of the rope. He should learn at least two good ways of fastening the end of a rope to a ring or post; one, a slip knot or manger knot which will draw up tight but may be easily untied; another, a bowline knot which does not draw up yet may be easily untied. He should learn how to hitch to a rope at any point on the standing part of the rope by use of a double bowline or other knot easy to untie. And lastly, he should become handy at tying two ends of rope together in several ways.

The repair experiences in all instances should be such as boys will later encounter in their farm work. It is believed that it can be said with sincerity that such work functions in the community and directly aids the boys.

By analysis the equipment on farms may be roughly classified and from the classification it should be easy to determine the type of *construction work* of a farm shop course. The farm buildings may be regarded as a distinct group in the farm equipment. Construction problems may be selected from this group. If a boy is conducting a poultry or pig project a portable poultry or hog house would be a very desirable construction problem. If the school is in need of such a building a group of boys may very profitably to themselves and the school construct it. In most instances, however, such construction problems are not available and cannot be offered as a complete solution to the construction program.

Another distinct class of farm equipment is that of the farm machinery. Ordinarily it is not the farmer's business to do any construction work on machinery. What work he does on machinery is covered in the repair part of the shop course.

A third group of equipment is that of portable farm tools such as forks, spades, rakes, hoes, picks, shovels, fencing tools, etc. No construction work appears in this group.

The fourth group of equipment is that of the repair and construction tools. This includes a kit of farm woodworking tools and the metalworking repair tools. In this group no construction work occurs.

The fifth group of farm equipment may be called portable farm appliances. These usually exist on farms to the extent of the individual farmer's constructive mechanical knowledge

and skill. If he is naturally ingenious and handy or has had the advantage of some training along constructive lines at school or at carpentry his farm is apt to be well equipped with convenient farm appliances.

The farm appliances may be grouped according as they function in a particular branch of the farm activity. Hence we have: poultry appliances, dairy appliances, stock appliances, fence appliances, barn appliances, bee appliances, field appliances, garden appliances and orchard appliances.

In making out a course of construction work for a class of boys in farm shop work each boy should be given construction problems which pertain to and are useful in the kind of farming he is interested in. If he is a poultry farmer and is carrying on a poultry project the appliances which would interest him and aid him in his work would be poultry appliances. Trap nests, brooders, feed boxes and hoppers, etc., would be his construction problems.

If a boy is carrying on an orchard project his construction work might be step ladders, orchard ladders, apple packing tables, apple box presses or other appliances used in promoting the apple industry. If his project is in the dairy line his construction work would naturally be pail and can racks, milk stools, milk record cases, etc.

This appears to make a rather ragged course to have each boy doing something different. It is ragged to those teachers who are more interested in the course than the boy.

The construction work should give properly balanced practice in all of the carpentry tool operation and every article made must be useful when finished on the farm in which the boy is interested.

FARM SHOP WORK

E. W. LEHMANN
Professor Agricultural Engineering, University of Missouri, Columbia, Mo.

The course in Farm Shop work in Vocational Agriculture should be an elementary course in practical mechanics as applied to problems on the farm. While the work should be practical, the basic principles and processes must be emphasized rather than overlooked. The work must be on a project basis and every project must be the construction or repair of something used on the farm, the planning of some device or the study of the operation of some machine.

Preliminary to beginning work on any project, the class should be given definite instruction covering principles and processes involved, materials used, tools required and the relation of the job to farm production or to living conditions on the farm.

An essential requirement of the work in farm shop is that each project as far as possible, be definitely tied up with an agricultural project. This is possible where the same teacher teaches agriculture. When the students are building self-feeders they can get a lesson in methods of feeding and kind of ration. When repairing the pump on a spraying machine they can get a lesson in spraying, when to spray and kinds of solution to use. When building feeding floors and manure pits they can get a lesson on the value of manure and how it should be handled. When building a seed testing box or a rack for seed corn they can get a lesson on the value of seed selection and testing. When putting in a septic tank or remodeling a privy they can get a lesson on sanitation and its relation to the health, the happiness, and the success of the farm family. In fact the farm shop work lends an interest to all other lines of work. There is a strong appeal to the average boy's mechanical sense and often times a lesson in farm crops or in farm management can best be driven home when it involves the study and investigation of certain machines, or the construction of a certain piece of equipment.

The average boy is happy when making something that is useful, or when tinkering with a machine; making something

out of that which has apparently been discarded. This characteristic can be encouraged in the work in farm shop.

Much of the work in farm shop might well be organized to meet the requirements of the individual student. This applies particularly to the home projects. The student should be encouraged to take pride in the equipment he uses, as well as in the crop or stock he produces. He should be taught that one's efficiency and success depends much on the equipment. The student who has a home poultry project should be required to build or remodel a poultry house as a home project in farm shop. The student who has a pig project might well build a hog house or a feeding floor, and the student who is growing a plot of corn should be required to build a rack for seed corn and a testing box.

Much good will result from the interest that can be created in improving conditions about the home. Repairing buildings and fences, providing better gates, the use of paint and wood preservative, building walks of concrete, making the privies sanitary, constructing septic tanks and installing plumbing and heating systems, all of which go toward making the farm a more desirable place to live.

As to the kinds of projects they might be classified as:

1. Projects involving the use of certain classes of tools in simple construction or repair work, and getting acquainted with the various processes involved.
2. Projects in which the student is required to construct or repair something where definite instructions and a complete plan are given.
3. Projects in which the student can use his initiative in planning, making drawings, and building something of value to use on the farm.
4. Projects in which the student will be given an opportunity to study and investigate the utility of different types of machines and make a report on same.
5. Projects in which the student will be required to repair and adjust machines of different kinds.

The subject matter in farm shop work includes:

1. Metal Work: The study of materials with problems in forge work and sheet metal work. Exercises in forming, welding, soldering, making tools, and tool and machine repairs.

2. Wood Work: The study of different woods used on the farm with problems involving various tools processes. The making of pieces of equipment of definite value in connection with farm work.

3. Concrete Work: The study of concrete materials, proportion, mixing and placing, with problems in the construction of sidewalks, floors, blocks, fence-posts, hog wallows and septic tanks.

4. Rope and Leather Work: The study of the use and care of rope with problems in tieing knots and making splices, halters and ties, and harness repairs.

5. Machinery and Tool Repair Work: A study of different machines and tools used on the farm with problems in their repair and adjustments. Belt lacing and babbitting included.

6. General Household Mechanic Work: The study of sanitary equipment, water, lights, and heating systems with problems in their installation.

7. General Buildings and Fences: A study of building, design, and arrangement; also fences, with problems in their construction.

With much of the work in farm shop the farm may be made the laboratory. Construction work and repair jobs may be carried out on nearby farms. Students can not only be encouraged to make improvement but the work can be actually done. Machines can be studied, used and adjusted under actual working conditions. The study of the machines used, the various operations analyzed, and the cost to do a certain job can be determined. The following project which was outlined to get before the students, the type of equipment used, the operations involved, and the cost of filling a silo is of interest in this connection. This project was carried out by a group of High School students at Columbia, Mo.

Project in Vocational Agriculture

Study of equipment, operation and cost of filling a silo.

(In the original each question is followed by a blank)

I. Binder.—Go to field where corn binder is being used and note: (1) make of binder; (2) principal parts of binder; (3) rate

at which team travels; (4) number of horses used; (5) estimate draft of machine if 4 H.P. is required to pull it; (6) rate of cutting in acres per hour; (7) cost of cutting the corn per acre, considering man labor, horse labor, and depreciation of binder which cost $250. (Assume twelve per cent depreciation) binder being used 12 days per year; (8) approximate yield of corn in tons per acre; (9) number of acres to fill silo; (10) cost of cutting per ton.

II. Hauling.—(Determine): (1) Number of wagons used for hauling corn; (2) cost per day for each wagon, man and team; (3) number of loads hauled per day by each wagon; (4) distance hauled; (5) cost of hauling per load; (6) average weight of load; (7) cost of hauling per ton.

III. Silage Cutter.—(Determine): (1) make of cutter; (2) type of cutter; (3) capacity of cutter in tons per hour; (4) number of wagon loads cut per hour; (5) number of men to operate cutter; (6) cost of operating cutter per day. (Cost $425, depreciation twelve per cent); (7) number of tons cut per day; (8) cost of cutting per ton; (9) width of feed rollers; (10) type of surface on feed rollers; (11) will feed rollers adapt themselves to keep a tight grip on the material with both light and heavy feeding? (12) has the machine a travelling feed table? (13) is there a safety lever for quickly throwing machine out of gear? (14) will the lever reverse the motion of feed rolls and feed table? (15) what do you think of the safety with which a machine can be operated? (16) how is the silage elevated into silo? (17) is the machine on trucks or skids? (18) note the construction of the frame; (19) how much power is required to operate the machine?

IV. Engine.—(Determine): type of engine used; its rating in H.P.; amount of fuel used per day; cost of fuel; cost of fuel used per day; amount of lubricant used per day; cost of lubricant; cost of lubricant per day; cost of hire of engine per day; total cost of operating per day; power cost per ton of silage cut.

V. Silo.—(Determine): type of silo; its condition on inside; size of silo (diameter and height); its capacity in tons; its capacity in loads; number of men traming the silage; time required to fill silo; cost of man labor in silo per ton; total cost per ton for filling; total cost of filling.

In this connection the following problem can be assigned:

Problem

Assume that you have a silo 16 feet in diameter and 38 feet high and that it holds 150 tons, which is to be filled with corn making 12 tons per acre. Determine whether it would be cheaper to fill the silo under conditions I or conditions II, mentioned below.

I. Use gas tractor already on farm for power to run cutter. Tractor can handle cutter at only partial capacity, 8 tons per hour. Cost of tractor per day is $10 (depreciation). Operator's wage is $5 per day. Tractor used 20 gallons of kerosene and 1 gallon of lubricating oil per day. (Kerosene 16 cents per gallon; oil 60 cents per gallon.) One corn binder in field. (Cost of binder is $250; depreciation, twelve per cent; binder is used 12 days per year.) Six wagons are used to haul corn from field.

II. Utilize steam tractor as was done in this case to run cutter. The steam tractor can keep cutter running more nearly at full capacity. Determine from actual observation, the following factors:

1. Cost of engine and operator per day.....
2. Cost of fuel per day.....
3. Rate of filling silo in tons per hour.....
4. Number of wagons used for hauling.....

Calculate cost per ton and cost for filling silo in each of the two cases. Base calculation on ten-hour day.

Many projects of a similar nature can be carried out. The study of tillage machinery in operation. Haying from the meadow to hay mow or to market; including a study of the equipment used, the operation involved, and the cost to cut, rake, haul, bale and load in freight cars.

It is the study and analysis of such problems that causes the student to have a greater appreciation for modern equipment and the importance of keeping it in first-class condition which is the big problem in farm shop. This type of project as suggested should be followed by others in which the student will be given actual experience in the handling of various machines, their repair, and adjustment. The tillage machinery can be adjusted and repaired. The same is true of the harvesting machinery, the haying machinery, and the power units on the farm. To say nothing of the various repair jobs that can be planned and carried out about the house.

STANDARDS IN PROJECT WORK

Report of Special Committee presented by the Chairman

H. L. KENT
State Director Vocational Education, Kansas

With the development of vocational agriculture in all the States the project, as an important part of the work, has demanded a great deal of study and attention. It is the feature of vocational agriculture which is definitely practical and applied. With the exception of the practicum, the project and a varying amount of somewhat unorganized, supervised practical work and the farm shop work, the teaching of vocational agriculture is trade-extension work. The farmer functions as a business man, a manager and a workman or operator. The major portion of the school work is devoted to furnishing trade-extension information which fits the future farmer to act as a manager and as an operator. The opportunity to apply this information and to gain skill and experience is furnished by the project.

On account of the importance of the project and because courses in vocational agriculture have been given chiefly in the regular public high schools a great many attempts have been made to measure it in the usual educational terms—How shall it be evaluated in terms of credit to the student? How shall project work be graded? Can standards be set up for measuring the project? Can we set up uniform standards for project work which will apply at least generally if not universally?

This report is an attempt to answer tentatively the last question. The study has been very brief and has been limited to the questionnaire method. Replies to the questionnaire have come from all parts of the country and from directors, supervisors, teachers and teacher training agents. One gratifying feature of the replies is that the teachers themselves seem to have been studying the project and to have a very clear conception of its function and purpose.

There is general agreement that the productive project is the one which should be emphasized with minor attention given to improvement projects. The farmer is a producer and therefore, in his training major emphasis should be placed upon pro-

duction. It should be noted too, that most improvement projects contribute indirectly to production. In fact many production projects include what might be called improvement projects. For example, a boy selects a pig project. As a part of that project he has to build a hog house and pens. This building is an essential part of his production project, but taken alone is an improvement project. Such examples are common.

The project is a series of jobs arranged in the order of operation and performed according to the most approved practice in order to produce a valuable commodity or increase the value of property. . The planning of the project, determining the time and order of doing the jobs and deciding upon the best method is a distinctly managerial function. When actually doing the job the boy functions as a workman and is acquiring skill.

Practicums are single jobs usually performed under direct supervision and designed to enable the pupil to acquire skill or to gain a clear understanding of directions given or information gained. The teacher may use the practicum as the "testing out" step in the teaching process. Frequently practicums may be designed to give skill and experience which is to be used later in carrying out a project. For example a practicum in selecting seed corn from the field may be used by the teacher to test the effectiveness of his teaching and at the same time to give the pupil skill and experience before he selects the seed for his own project.

It is necessary that the distinction between the practicum and the project shall be clearly drawn and that the relation of the practicum to teaching and to the project work shall be clearly understood and appreciated.

What are the objectives of a project?

The project should result in material profit to the student. That is, the net income from the project should belong to the student.

Through the project the student should acquire or increase skills and develop managerial ability and experience. It furnishes an opportunity for the pupil to apply the information he acquires in planning a piece of work and carrying the plan to a successful conclusion. It should develop judgment and business sense. It should furnish training in the keeping of accurate business

records. It should develop ambition. It should develop a friendly attitude toward labor or physical and mental exertion. It should develop joy or pride in productive work. It should develop interest in a real business or vocation.

To the teacher it means the inspection or "testing out" step in the teaching process, the means of determining whether he has done a good job of teaching.

How should the project be planned?

The project should be planned by the pupil with the guidance and assistance of the teacher. The pupil should not use prepared outlines. These may be used by the teacher or as illustrations for the pupil. If the pupil is to be trained to use his knowledge in planning work and carrying his plan to a successful conclusion he must plan his own project. Furthermore he should justify each step in the plan.

The planning of the project is a part of the regular school work. The pupil should make his plan, determine approved practices, provide for conditions which may arise and carry out the plan with the guidance and supervision of the teacher. Reports should be made to the class and opportunities for questions, criticisms and discussion offered. Pupils should be required to prepare written plans in order that the plan may be definite and well understood.

When should the project be selected and work begun?

Project work should be begun during the first year of the course. The project should be selected by the middle of the year at least, preferably earlier so that plans may be made some time before they are to be put into actual practice. A corn or sorghum project for example should be begun early enough that pupils may select seed from the field in the fall. This will necessitate an early selection of the project and immediate work on the plan.

What should be the relation of the project to the general class work?

For each year the project should deal with some part of the major work of that year. If crop production is studied the first year, the project work for that year should deal with one of the crops studied. Usually a pupil should not begin work

on a project until some study has been given to that phase of agriculture. Occasionally, seasonal conditions and the time of opening of school will necessitate exceptions. A wheat project in the winter wheat region is an example. Seed bed preparation should be begun before school opens.

Project work should be cumulative. That is, if a pupil undertakes a stock project the first year and a crop project the second year, the stock project should be continued during the second year and both the stock and crop projects continued through the third year. By this method the project work will develop into a real farm management problem.

The project is neither a center of instruction nor a dependent part of the work, but an integral, parallel part of the pupil's training.

Can we set up a minimum standard for projects in terms of hours of labor, amount of profit, number of acres of land, number of trees to be cared for, head of stock, etc.?

A very few replies to the questionnaire answer in the affirmative, but specify that this minimum must be varied from in many cases. A majority of the replies are emphatic in their statement that this cannot be done. It appears that the teacher must pass upon the fitness of the project after he has taken all the conditions into account. (See below.)

Why may we not set up definite minimum standards?

Conditions vary so widely over the country and even within a State that minimum standards are impossible. A standard number of acres does not mean the same thing for a crop of oats, as for a crop of corn or cotton or beans or potatoes. A minimum number of acres in the middle west with its extensive machine farming is not the same as that number of acres in the east with its more intensive agriculture, fertilizers, etc. Therefore, the size of the project will of necessity vary with the locality, and the nature of the project. It should involve a very nearly fixed amount of labor and such capital as the boy can command.

Other limiting factors are the boy's strength or physical development, his resources and his other responsibilities. A boy should not be denied a place in vocational agriculture because of a lack of funds. He may be allowed to undertake a small project. An example of fitting the project to a boy's other responsibilities is that of a boy whose father was dead

and who had charge of the whole farm. The teacher made the management of the farm the boy's project.

The success of the project cannot be measured in terms of profit because of uncontrollable factors of rainfall, frost, variations in productivity of the soil, market prices, etc. Again the teacher must use his judgment and measure the boy's financial success by comparing the profits of the farmers for that year.

How shall the fitness of the project be determined?

By the teacher who should know all the conditions and approve only a project which is worthy and justifiable after taking all the factors affecting the boy's ability into account. Of course, the teacher should be sure that the project furnishes opportunity for the full development of the boy. That is, the teacher must not forget the real objectives of project work. (See above.)

In general the replies indicated that a score card for projects is impractical because of varying conditions. As far as opinions were expressed it seems that in judging a project twenty per cent should be given to plan, twenty per cent to skill in execution, forty per cent to profits and widely varying weight to reports, interest, regularity, etc. The lack of interest in and agreement on a score card simply indicates that it is not considered especially practical.

Shall the project be put upon a commercial basis?

Yes, the boy should pay rent and all other expenses. He must get real business experience and training and not do mere play work. The project should be organized on as firm a business basis as any farm enterprise.

May any other work be substituted for the project?

A number of replies suggest that for the town boy without farm experience a part of a year spent on a farm doing the variety of work done on a farm would be more valuable the first year than a project. The skills acquired and experiences and information gained would be much more varied and helpful. Furthermore, such work gives more real farm experience. Of course, this plan deprives the boy of managerial training the first year, but the general farm experience is more essential to such a boy because he is of necessity a member of a trade extension class.

Should there be uniformity in project reports?

There should be State uniformity, but not national uniformity. The State reports and records should agree with the systems advocated by the agricultural college in its classes, extension and club work. This prevents confusion and permits of comparisons.

Reports should be complete and systematic, but should not destroy individuality. They should be based on a good accounting system. While uniformity in the State is necessary if we are to compare reports and results, as much variation in project accounting is permissible for the country at large as is allowed in business accounting.

How shall the success of the project be measured?

The efficiency of the plan, the carrying out of the plan, skill in doing the work, proper use of what the pupil may be expected to know, records, reports, profits, etc., must determine in part. None of these can be set up as major determining considerations especially where they are affected by uncontrollable factors.

The success of the project must be based in part at least upon the boy and his interests. It should be kept in mind that it is the business of the teacher to make a real farmer and not to use the boy as a means of developing hayseed.

DISCUSSION

C. W. WATSON
State Supervisor of Agricultural Education, Nebraska

A home project now seems to be the most effective device for meeting the requirement of the Smith-Hughes law for 'directed or supervised practice in agriculture, either on a farm provided for by the school or other farm, for at least six months per year."

This supervised practice or home project is intended to offer the student an opportunity to develop skill and to apply his vocational instruction, in the development of that skill. Skill, as here used, means both manual and managerial skill. The project must also provide opportunity to motivate much of the student's learning and give the reason, therefore, for a large part of the teacher's instruction and of the student's study.

A home project is a farm enterprise which includes problems of planning and management, operation, financial responsibility, study for improvement, and the checking of results from accurate records. If farming can be standardized then the project can be standardized.

The speaker is not in sympathy with the attempts in some parts of the country to fix more or less arbitrarily a mimimum number of hours of labor, or of crop acres, or of livestock, or a minimum of gross receipts, that are to be accepted as a project. As the size and extent of a farmer's operations are determined by many factors among them being his financial circumstances, his managerial ability, his market facilities, his physical strength, so the size of the project must be determined by similar factors. The problem is for the student to realize that his project is a real problem for a real man and that he is the man.

The speaker is not in sympathy with the attempt in some quarters to fix project standards on the basis of "school hours" according to which credit is given for project work. The Nebraska plan in day schools is to consider that vocational education in agriculture requires one-half day of the student's time, which must be employed in the study of the problems in agriculture and farm mechanics, and supervised practice in each, including a related home project, which must of necessity extend through a natural cycle of time. The satisfactory completion of the agriculture, the shop work, and the supervised practice entitles the student to four "points" or two "units" of credit for the year's work.

Outlines of standard projects prepared from the State office or by committees of teachers, if issued at all, should serve but one purpose; namely, to acquaint the instructor with outline type for his guidance in directing the pupils.

The Nebraska plan considers that the project involves the following points:

1. Project Agreement and Understanding.—This agreement involves the number of livestock, or acres of land; the purpose of the project; the place to carry the project out; financing it, etc. These points are determined through personal conference between the teacher and pupil.

2. The Project Study Outline, which is worked up by the pupil, after a conference with the instructor, and is a guide to the pupil's study and in the result of his study.

3. Project Plans.—These include plans for carrying the project agreement into execution. They will develop as the project develops and as the execution of the project itself develops. Often plans will be decided upon during the summer long after the project is started during some visit of the instructor.

4. Project for Cost Accounting Records.—These records include such items as labor; of disbursements for supplies and feeds; of the use of capital, power, machinery, land, building improvements; of receipts for the sale of products; of inventories; and perhaps other miscellaneous items.

5. Student's Diary which should include, among other things, his practices and his observation of natural phenomena, as they may affect the results of his project.

6. Final Report which includes a financial report and a narrative on what was done and the results obtained.

THE SUPERVISION OF OTHER PRACTICAL WORK THAN THE PROJECT

(*A Summary*)

J. B. LILLARD
State Supervisor of Agricultural Instruction, California

In California we insist that the project work shall be taught by the teacher of agriculture, and that he shall supervise the instruction in farm mechanics and related subjects.

In view of the fact that the principal of the high school has the right to investigate and adjust the home work of the student in case it interferes with his school work, we suggest that the student of vocational agriculture make a program of his full day's activities at home and at school, and that there be a mutual conference between parent, student, teacher of agriculture and possibly the principal of the high school.

In case there is an exchange of work between the father and the boy, there should be an arrangement similar to that above. The thing to avoid in all cases is a paternalistic attitude on the part of the teacher.

There should be the closest correlation between the practical work done at home and the work done in the school room. In California students not residing on farms are urged to secure some experience as farm workers before beginning the second year's work, and before entering upon the third year's work each student must submit evidence of having had at least eight weeks of ranch, farm or market garden, working experience as an employee, and before entering upon the fourth year of the course, each student must submit evidence of having had at least sixteen weeks of such experience. This experience, on an accredited farm, should be under the supervision of the teacher of agriculture.

The efficient high school must have a part in every educational effort of the community in which it is located. At the present time the school is extending its influence in the community and is attempting to recover educational work that has been sublet to outside agencies. These are encouraging omens, but we must be careful in our efforts to render adequate

service not to usurp non-educational functions that belong to outside agencies, and above all there must be the closest co-operation with all the other forces working in the community for better rural life.

NATURE AND CHARACTER OF PRACTICAL WORK OTHER THAN HOME PROJECT WORK

I. B. BALL
State Supervisor Agricultural Education, Utah

Vocational Education stands on two legs. One foot is the school instruction period and the other is the home practical work. There is not much experience to guide the feet of an instructor in the supervision of home practical work although the home work is primarily essential in agricultural teaching. Agriculture was taken into the school program through the same door as entered all other subjects and received the common treatment, namely, a forty-five minute recitation period and no out-of-school supervision.

In the matter of supervision of home work we have the experience of the Smith-Lever club work. The project has occupied a large place in this program and no one can calculate the value of the services rendered through these projects.

But the theory of junior extension work is somewhat distinct from the principles of an educational program.

We may analyze the distinction. The aim of agricultural extension work is a demonstration of a successful farm practice. We could not say that it is primarily concerned with well-rounded educational ground work. It cuts away immediately to a single direct demonstrable result. Hence arose the project as a unit extension progress. Clearly this is an effective way of driving home to a community the lessons of better farm practice. It concentrates upon a few big problems. In fact for the adult, it is the only method yet discovered for wedging the doctrines of modern farming into the consciousness of most adult tillers of the soil. But, is it the model to adopt for an educational program for youths still within the years of school attendance?

Consider the problem of educating a boy to become a good farmer. Let us say a boy attending either a regular or a short course at high school. The boy begins very early to take part in the chores about the farm and about the home and thus his education begins in poultry keeping, dairying, horsemanship, field culture in the various crops, irrigation and in general farm practice including farm machinery and crafts and common farm repairing.

There is no possible way of systematically training the adult in all the factors that go to make an all-around farmer. But with the boy we are considering, it is far different. He is under instruction that is definite, compulsory and progressive. Therefore, with high school boys we are not compelled to limit ourselves to farm projects. We may train these boys systematically in all the phases of farm life with which he comes in contact and in which he feels a need of mastery.

The direct question then arises, shall the home practical work for a youth who is studying agriculture in high school consist alone of one or more projects each year? I am more and more inclined to answer that to so restrict the summer supervision would be to fail in the largest part of the problem, because the largest opportunities lie in influencing for good all the farm practices in which the boy engages. I think a boy spends about one-tenth of his time on the project and about nine-tenths on other farm work during the six months open season on the farm, while for the other six cold months all his farm work is usually general chores. Therefore, the quickest and surest way to train the boy in both theory and practice of better farming is to plan all the pupils' farm work as a legitimate field for supervision with parental cooperation.

As the machinist is trained to know and to manipulate all parts of the machine, so the farm boy should be trained to know and to do the best practices in all the work of the farm.

Therefore, it seems to me that the entire operation of the farm should be supervised as far as the boy takes part in the work and that the farm project should be reserved as concentration on a definite problem in which the boy assumes all of the responsibility.

In Utah, we believe that the supervision of home practical work should include the following: First, the project on a commercial basis; second, all general farm operations in which the boy engages; third, farm crafts, which are employed in all this work; fourth, farm mechanics achievements or minor projects.

I know from my experience in supervising projects in junior extension club work it is possible for a boy to carry on a project each year which will win prizes for particular merit and at the same time to continue to care for poultry in lousy and dark poultry coops and also to milk day after day in filthy, inconvenient conditions. I do not mean that this could be all the fault of the

boy nor that he could effect revolutions, but I do believe that all of these farm activities in which the boy engages are a legitimate field for home supervised practice whether they are parts of a project or not. Nor would once correcting such bad practices be sufficient. The instructor must realize that in all farm operations the boy is now contracting habits which will dog him through life. The correct habits must be formed through repetition, times without number and the teacher must realize that his duty is to follow carefully these items which appear small but which in the aggregate make the farmer of one type or another, good or bad.

I will now read from the report of Millard County, Utah, submitted December last by M. Rich Porter, agricultural instructor. Mr. Porter reports 41 enrolled, in 55 projects.

His boys completed the following Farm Mechanics' Problems:

Farm gates made	6	Refrigerators	3
Head gates (wood)	3	Furniture varnished	1
Repair of rake	1	Granaries	1
Repair of auto	2	Cow stalls	1
Poultry Coop	1	Fence repairing	7
Wagon painted	1	Out-building	1
Camp wagon front	1	Quilting frames	1
Chicken runs	3	Binders repaired	1
Wire fences	5	Grub box	1
Wood racks	1	Chemistry case	1
Machinery assembled	3	Cement head-gates	1
Tables	2	Rack holders	1
Fences painted	1	Book cases	2
Coal shed	1	Cess pools	1
Room calcimined	1	Farm gates repairing	1
Mangers	2		

In addition to these Farm Mechanics achievements his boys completed Farm Crafts as follows:

Plowing	6	Pruning	1
Harrowing	5	Care of animals	4
Discing	1	Care of stables	3
Irrigating	9	Care of machinery	1
Drilling	2	Hanging gates	1
Railing	2	Mowing	2
Leveling	1	Milk testing	6

Milking	1	Ditch making	1
Potato treatment	1	Corn judging	3
Seed purity test	6	Soil testing	9
Hay measuring	5	Seed germination	7
Operation on level	1	Well driving	1

I have now touched upon four phases of home supervised work. In Utah we include four other activities namely: (1) Nature Observations, (2) Club Recreation, Tours, Hikes, Fairs, etc. (3) Community Service. (4) Health Habits.

Under Nature Observations we include the following:

(a) Economic insects and plant diseases, names, habits, and controls.
(b) Flowers, shrubs and trees, names, habits and use.
(c) Weed study.
(d) Bird study, names, life history.
(e) Ornamental gardening for the home.
(f) A general appreciation of beauty in the open country, tree vistas, landscape pictures, mountains, sky scenery day and night.
(g) Reading delightful stories that breathe boys' appreciation of normal country life.

Class study alone accomplishes little in these matters. The three seasons of home supervised practice afford the boy opportunity.

A record for each visit should be kept showing the things learned or achieved under the six heads. This sort of thing should be so supervised, however, as to leave the boy his initiative and to inspire spontaneous reaction to the general scheme.

Club recreations include games, camping, celebrating an annual day at a local pleasure resort.

Tours include trips about the districts or to nearby sections to visit successful farms.

School and county fairs should all point to the culmination at the State fair where a week's encampment is held.

Community service includes civic and patriotic activities. In Utah we have a plan for which we are becoming, we find, somewhat conspicuous, which we call "Supervision Over the Entire Twelve Months in Vocational Activities, Civic and Patriotic Service and Health Habits." Under this plan the Smith-Hughes instructor in the summer time continues to supervise young peo-

ple in civic and health activities which have been checked up by the high school principals and the faculty during the nine months of class work. As far as civics is concerned the plan contemplates actual civic achievement. This includes in the summer time home ground improvement, satisfactory work in his boy scout organization, attendance at community meetings including the Sunday schools, and services in patriotic drives or the celebration of national holidays.

In health habits the summer supervision covers the use of narcotics, care of person, the hours of rest and the amount and kind of recreation. I will not enlarge on these items except to observe that habits in morality are synonymous with the health habits to a large extent.

Of course, the Utah plan for summer supervison does not conduce to idleness on the supervisor's part. But I should hasten to state that our plan contemplates that other summer workers will assist in looking after the youths from 12 to 18. For instance, many high school and elementary principals will be at work this summer. Playground and health supervisors are coming to be employed on twelve-month contracts. Of course the county superintendent is in charge to direct the whole scheme, and calls weekly meetings of all summer workers.

I have had passed to this audience the following Utah publications, which the State Department of Education will gladly mail to those interested:

1. Vocational Education Letter No. 1, on the subject of "Home Supervised Practical Work."

2. Vocational Education Letter No. 2, which is a summary of the report on supervised Summer Work in Millard County, Utah.

3. Form 3, a loose-leaf sheet for instructors to make out in duplicate and send in to the State office semi-monthly (not bi-monthly, printed by error on the form). It covers project work.

4. Form 4, a loose-leaf sheet for instructors to make out in duplicate. It covers Farm Crafts, Farm Mechanics, and Nature Items.

I use other loose-leaf forms (eight altogether) for summarizing the work, for enrollment, etc.

I can say in closing that Utah instructors, superintendents and farmers endorse the Utah Plan of Summer Supervision, and also that we have been delighted with the adaptations and improvements made on this plan by the Mr. Nolan of Illinois.

SECTION III

COMMERCIAL EDUCATION

RETAIL SELLING EDUCATION: THE MERCHANT'S POINT OF VIEW

FLORA TAYLOR YOUNG
Teacher of Salesmanship, Mandel Brothers, Chicago, Ill.

I should like to say two things: that the merchant is behind this movement to encourage vocational training, especially salesmanship, and that he is away ahead of the professional educators in his vision of its future.

For many years Department Stores have been employing people who for one reason or another did not take advantage of the educational opportunities offered by the public schools. A crude company came pounding on the merchant's door demanding a chance to sell goods because they did not have the skill or the training to do anything else.

To this job, requiring ability to use clear, expressive oral English, came hordes to whom English was not even the mother tongue. In few cases had English been spoken in the house for an entire generation. Instead of pleasing confidence in meeting people there was painful diffidence. Where there should have been information and helpful suggestion to aid the customer there was neither knowledge nor imagination. Neither was there ability to write legibly nor compute in arithmetic. Frequently the sales girl made change and computed amounts by counting on her fingers.

By a system of hiring and firing the merchant eliminated the majority of those who entered his employ for mistakes due to lack of schooling and with the remainder built up his business. He also built up his people in his own way by adding his spasmodic instructions to their painful self-teaching.

We like to boast of our educational system—meaning always the school. But in this country there are two great educational systems—one the school, the other the occupation—and it is

taking us a long time to marry the two. We educators have been fearful of the outcome. The merchant is not, for he has proved himself the better educator. I can not prove this last statement but I challenge your investigation. Measure the success of education either in salary or in assistance to others.

The merchant took that diffident girl who had only fourth-grade education and developed her into a buyer who circumnavigates the globe twice a year in search of treasures to adorn your home or person. He took that freckle-faced boy who ran away from the deadly dull fifth grade and made of him a system man. That boy with the coat too short and the body too long who had to be sent off the floor to wash his neck every morning is now a dandified business man who spends a third of his time in Paris buying women's costumes. They have found their "metier" and their salaries run into five figures, but it took twenty years to develop those people because of their poor foundation in elementary school work. That lack has meant an economic loss both to the employer and to the employee. I look forward to the time when we shall be able to take a high-school graduate who has specialized in salesmanship and make her a European buyer in five years.

Your great caravanseries of merchandise in large cities employ thousands of people, one-third of whom are engaged in selling. Yet the schools have steadily neglected this large group until the merchant brought pressure to bear. For it was the merchant and not the pedagogue who first saw the schools' responsibility to these wage earners. For years he had trained his employees himself according to his own ideas, but as their numbers grew and his burdens increased he began looking to the school for aid. And you know how reluctantly it has been given. It takes about three years of pleading with the local school board before the merchant can get the salesmanship course introduced. Often he pays part or all of the teachers' wages and always he throws open his store as a laboratory for the students and places his organization at the teachers' service for information and aid. Nor is he selfish in this program. It is true that he hopes to secure these specially trained high school pupils for his own store, but he also wishes these young people to have a chance at the wonderful opportunities he sees in his own field.

Suppose that when Mrs. Prince of Boston had proved to herself fifteen years ago that she could take the human flotsam of

Boston stores and train them so they could hold jobs as saleswomen, she had gone to the school principals and proposed placing the course in the curriculum. Can you imagine their welcoming the idea? I have no wish to be unkind to those principals for I don't know who they were, but I have been a high-school principal and so have most of you. And you and I know how we would have feared that idea. Mrs. Prince had to sell her new departure in education first to the Boston merchants who immediately demanded teachers of salesmanship for their own stores. They, in turn, helped to convince the Boston School Committee that it would be possible to offer a course in Salesmanship in the high schools. That experiment as you know, was watched with skeptical interest by both merchants and educators throughout the country. Little by little the plan worked out and the foundations of the Boston School system remained unshaken. In fact, the pupils began to suspect that school life and after life bore some queer relation to each other. But the school teachers were not convinced, nor were the parents.

Teachers who never in their lives asked what their pupils did on Saturday, suddenly became much concerned because they were allowed to work in the stores on Saturday. As for co-ordinating salesmanship and the routine studies, there was nothing in the textbooks about it, so it could not be done. In fact there were no textbooks, so how could it be taught?

Parents who had allowed their daughters to gad through the stores unchaperoned every Saturday were doubtful of the moral effect of having them work for a living there. I think they pictured the stores as filled with ogres that eat little girls up. They preferred that Nellie take typewriting because that was a ladylike occupation. How could they know that Nellie would be safer in the publicity and under the discipline of store life than she would be spending her days alone in the office of some professional man.

So with many false starts and readjustments the work became fairly started in the Boston schools and pronounced a success by both merchants and teachers. A textbook has been written and co-ordination secured. The most interesting lesson in Color and Design and the most interested class I ever saw, were visited in Boston three years ago. The teacher was using window display, gowns and hats for material and the class seemed gratified that she had caught a vision and made practical application.

With Boston convinced you would have expected the National Education Association to become deeply interested. But the merchant led again. The National Retail Dry Goods Association got behind the work and employed Mrs. Prince to train teachers for stores and schools. Then every merchant went home to sell the idea to his school board. Had he grown discouraged you and I would have missed this big chance to educate those who are to sell the most neglected of the great vocations.

For it is a great vocation. To sell efficiently requires as much brains, as much study, as much unselfish service, as the profession of teaching, preaching or nursing. If you have never given thought to it, think it out. Selling, even temporarily, is good training for the girl who does not regard it as a life work. It develops earnestness, wit and resourcefulness; it increases information about textiles and other articles which will be useful to the girl as a purchaser all her life; it gives glimpses of sources and economic conditions under which merchandise is produced which broaden the mind and stimulate reading; it intensifies interest in people in all their moods and varying characters, enriching the sympathies and understanding.

So I beseech you, teachers, if your merchant in your town is ready to cooperate with you in offering the course to the young people in your town, meet him half way, or more. Merchandise and business association are practical studies which will benefit every girl and boy in your school.

COOPERATION BETWEEN THE NEW YORK CITY PUBLIC SCHOOL AND DEPARTMENT STORES OF THE CITY

LEE GALLOWAY
Training School for Teachers of Retail Selling, New York University

I am sorry that Mr. Charles N. Smith of Newtown High School, New York City, who was to have spoken upon this subject, is not here to tell you in person of the interesting things which New York City is doing in the way of cooperative work in connection with its commercial educational work. My connection with the development of this work is only incidental. I was drawn into it by the University's attempt to prepare teachers for a part of this work in its Training School for Teachers of Retail Selling. However, I am sufficiently acquainted with Mr. Smith's work to fairly represent his point of view.

In February, of 1915, the Department of Education of New York City made its first real attempt to cooperate on a large scale with the business and industrial establishments of the city. The plan adopted was the "alternate week plan" whereby the pupil spends one week in the business house and one week in school.

New York's particular problem was to adapt the principle of cooperation to a large city system of schools. Furthermore, the New York problems are in many instances peculiarly New York's, and must be handled differently from similar problems just because the city is so large. Also, while manufacturing is carried on in New York City, and the Metropolitan District, the city is essentially a commercial center. It was originally a trading post, and true to its origin, the dominating activity of the city is still buying and selling, coupled with the necessary keeping of records, problems of transportation, importing and exporting. Therefore, any scheme of cooperative education, for New York City must keep this fact in mind. It also follows naturally that industrial cooperative education, which had been the big feature in other places where cooperative education had been applied, should take second place, and that we should here enter a comparatively new and untried field of adapting this

form of education to the counting room, the export house, banking institutions, and the wholesale and retail establishments.

It also developed early in our experience that commercial cooperative education had two distinct parts, namely (a) laboratory work for existing courses and (b) vocational adjustment and training.

By laboratory work for existing courses is meant that after pupils have attained sufficient skill in stenography, typewriting, bookkeeping, filing, and the use of office appliances generally, they are assigned to positions in offices requiring such work, where they adjust themselves to the business atmosphere of the place. This usually takes place during the last term of the last year of the high school course, and naturally is confined to that group of pupils who have shown a tendency to stick to the end. The real value of this part of the work, therefore, lies in the opportunity which it affords the pupil to make the adjustment from school to business while still under the sympathetic guidance and care of his teachers.

The second part of commercial cooperative work has an entirely different aim, and must be handled in a very different manner. This part of the work, instead of giving practical experience along predetermined lines to pupils who have remained in school for two or three years and who have every intention of remaining until graduation, deals with that very large group of boys and girls who enter our high schools with less definite aims, or, are just drifting along, sooner or later to drop out of high school and enter industry at any point where contact is easiest, and without special preparation for doing anything well.

It is upon this phase of the work that the Newtown High School of New York City has specialized particularly. Here, Vocational Guidance comes prominently to the front. If the "drifter" is to be tied to a definite job having a definite future, pains must be taken to know as much about him as possible, his past record, his natural aptitudes, his likes and dislikes, his adaptability to new conditions, and the like. This class should by no means be neglected and yet it is a class of boys who are leaving schools in large numbers each year. However, it is only the far-sighted and conscientious administrator who is willing to take up so arduous a task, since it carries with it many problems of program and teaching adjustment. Yet for those willing to pay the price there is abundant reward.

To conduct successfully this type of cooperative work one must have a large variety of positions, since the training must be as varied as the positions, for cooperative education means, if it means anything at all, the training of the pupil on the job and for the job, a close articulation of the two prime factors, the *worker* and the *job*. A brief description of the conditions surrounding the introduction of the cooperative method as applied to salesmanship in the Newtown High School will show up the problem in a way that no abstract theorizing will do.

At first this course had to be taught by a substitute who was secured from one of the Department Stores. The special subjects introduced into this course were Textile and Nontextile Merchandise, Color and Design, Store System and Practice, Salesmanship,—all of which were treated in such a manner as to have a cultural as well as a training value. The syllabi of the various merchandising subjects were prepared by a committee representing both the school and industry. This committee worked for weeks. If the work was to develop, more teachers and better prepared teachers must be trained. The Department stores themselves were also in need of teachers for their workers. This led to conferences between the school officials and the representatives of the department stores and of the University which was later taken to the New York University and the outcome was the School for the Training of Teachers of Retail Selling which was started last September under the guidance and with the support both moral and financial of the leading merchants of the Metropolitan District—some twenty stores in all.

As a sort of by-product of the work of secondary school coordination there has been developed a scheme for the placement of high school pupils who want work outside of school hours and during vacations. Heretofore this has been largely unorganized, no attention being paid to the student's fitness for the job. The attitude of both the school and the employer was much the same in this respect. Not so many years ago it was the practice of employers, every time there was some special work to do, to advertise for a number of people to do temporary work, with the understanding that they should be laid off just as soon as the work was completed. This practice was very common in retail stores. The trouble with this scheme was that your so-called "special salespeople" was largely a class of irresponsible floaters, involving heavy expense in "hiring and firing," to say nothing of

the training, necessary. The tendency of late years has been to build up a "contingent force," a sort of "flying squadron" which could be used wherever needed. Then, too, in some industries, especially department stores, there are peak load periods, which demand a considerable increase in the number of employees. Particularly is this true on Saturdays and before Christmas, Easter, etc. To meet this emergency an experiment was tried this last year in which a cooperative agreement was entered into between the stores and the Department of Education, whereby this contingent force was to be made up to a very large extent from our high schools. The stores agreed to take a certain number of these young people for Saturdays and the vacation period, or after school, Saturdays and vacation periods, at an agreed salary and give them employment throughout the year, in consideration of concessions on the part of the Department of Education. This work was concentrated into a central office, where a careful record was kept, the scholarship of the pupils was checked up, and other data was kept on file. The work offered was varied and gave a fine opportunity of trying the pupils out on various lines of work, as well as giving the pupils a chance to see some of the many opportunities offered to workers in this particular industry. Their earnings were sufficient to enable many a boy or girl to remain in school since their positions were as secure as those employed on full time. Also these same pupils can be called upon as a relief force for the summer vacations, for the training given these young people is all cumulative and by the time summer comes, they are really experienced employees. This plan has been adopted by a number of our leading stores and plans are under way for spreading it to other lines of industry. In fact New York is now working out a plan to organize most of this available force of high school workers into just such a working reserve. The control which the centralization gives us enables the boys and girls to be placed in positions in keeping with their school studies and so has a distinct educational and vocational guidance value. This work has been put into the hands of Mr. Smith by the Board of Education and we are all looking forward with interest to this newest experiment in vocational guidance on a large scale.

At the present time upwards of 2,000 high school boys and girls are so working—this is in addition to the more than 1,000 who worked last year on the cooperative plan, an even

larger number working on this same plan this year. We feel that this is a field which is almost virgin soil but which offers unlimited opportunities for development.

A special feature pertaining to the cooperation between the stores and the city schools has developed through the Training School for Teachers of Retail Selling. This feature of the University work has been quite interesting since the classes of store workers which have been organized in the Evening High Schools in New York and Newark have been put in charge of the Teachers in Training. These classes have been attended by store workers ranking all the way from Junior Salespeople to Buyers. The subjects taught have been textiles, store organization, salesmanship, and English. The teachers of the classes have been the more experienced of our students in the Training School for Teachers of Retail Selling at the University. It has given the opportunity to pass on the work at the University to the store worker. It has also given us a chance to judge of the ability of our "teachers in training" to hold the interest of the people whom eventually they must teach. It has also given us an opportunity to judge of the ability of the teacher in training to interpret the subject matter in terms that would get across to the store worker, no matter what his previous education or training. This has been somewhat strenuous work for the teacher, but it has been an excellent experience, and has given us one of the very best lines possible on their resourcefulness.

PART-TIME RETAIL SELLING EDUCATION

ISABEL CRAIG BACON
Special Agent, Federal Board for Vocational Education

It is a great pleasure to see so many representatives of public schools also business establishments. No sectional meeting can boast any larger representation of business men than we have here in this room. This is indicative of the interest which both our schools and employers of the product of our schools have in retail selling training courses.

Chicago is to be congratulated upon the achievement of the present year. Those who have labored to bring about this close cooperation between the Chicago stores and the Chicago schools must certainly feel that they have accomplished much.

Perhaps the most important note for me to sound today is to emphasize the necessity of working together. It is through the united efforts of the teachers and the merchants that a training course may be developed which will adequately serve the needs of the young people of Chicago who are at work in the stores. First of all may I ask you to think not of the standards required for making the work conform to Smith-Hughes rulings, but to think of the opportunity we have of making it possible for each person who wishes to do his or her work in a better way to avail themselves of a training suited to the individual needs.

The types of training courses in the Chicago Public Schools or in any schools should recognize the needs of the group. Some communities think only of training the workers who are permanently employed. Those who are looking forward to entering the field of retail business must be cared for also. This large group presents one of the most interesting problems for our consideration. They may be reached through the high school courses given in the third and fourth years on a cooperative basis, Chicago, Boston, New York, Pittsburg, Toledo, Providence and many of our large cities as well as an increasingly large number of our smaller cities have established the cooperative part-time course in Retail Selling in the High Schools.

Many of us in our endeavor to live up to standards and rulings lose sight of the big fundamental needs,—for instance we quibble

over the use of the word "part-time." What does it mean? I confess that I do not know! It helps me however, to keep in mind that fundamentally it means that a portion of the time shall be spent in school and a portion shall be spent in working in the retail stores—the most natural and effective laboratory one could desire. It is not possible for any one to arbitrarily settle the exact sorting of time to be given to store work. Our minds should constantly seek to **find that plan which will enable us to have an adequate amount of store practice** which when interpreted to the student by a well qualified teacher will enable that pupil at the completion of his training to take his place as a worker in a retail store. We are really challenged to prepare trained workers for positions in our retail stores. Experience has led us to believe that these trained workers can not be produced with less than approximately half time spent in actual store work during the period of training.

In a brief discussion of this kind we must keep in mind the importance of maintaining a **training course** with Vocational aim and not a **subject** given in the high school program according to methods used in academic subjects. Store experience forms the basis for this training. There are a number of excellent texts which may be used to advantage, particularly as reference books.

To insure a successful program we must have something more than good texts and fine stores as laboratories. We must have **specially trained teachers** who have had store work as well as a teacher training course in retail selling. A broad educational background which will insure an understanding of people is essential. Many cities and states now see the error of beginning the work before they had secured properly trained teachers. The wise states are looking ahead to the establishment of retail selling teacher training centers before beginning their classes on a large scale. In our large cities the work of the teachers is highly specialized. In Toledo for instance two teachers are in charge of the Retail Selling courses in the high school and one is in charge of the retail selling classes made up of older workers employed in the stores. A good teacher in a smaller community may so arrange the week's program as to include the store classes and the high school classes, also give several hours to careful "follow-up" work which is so essential to successful work in this field.

It is necessary therefore, for any of us who are interested in the development of these part-time courses to organize our work so that it will be **effective in our own community.** We do not need to live up to a plan made to suit Providence, Rhode Island, unless we are working in Providence. The plan which has just been inaugurated so successfully here in Chicago may not suit the needs of San Francisco.

The schools and stores must share responsibilities. The schools must be organized as to enable the retail selling course to operate on a cooperative part-time basis. The schools must also recognize the value of the store work as a necessary part of the training course by making it possible for each pupil to get store experience, also to give school credit for this store work. On the part of the merchants, organization which will make promotion possible is absolutely necessary. Consideration must also be given to the wage scale, a definite routing through the store during the period of training and a recognition of the value of the training when employing an individual who has been trained in preference to one who has not taken the training course. This part-time group forms the most valuable resource for employment and many merchants now welcome the opportunity to help schools work out these vocational training plans.

SECTION IV

INDUSTRIAL EDUCATION

VESTIBULE AND UPGRADING SCHOOLS

Report of Special Committee presented by
H. E. MILES and E. A. BARNES

I

SOME STAGES IN THE DEVELOPMENT OF THE FACTORY TRAINING MOVEMENT

H. E. MILES
Chairman Committee on Industrial Education, National Association of Manufacturers, and former Chairman Section on Industrial Education for the War Emergency, Council of National Defense.

1. Manufacturers have always had ways of breaking in or training employees. For many years some have had superior methods; but the number of these has been so few that we may say that the factory training movement, intensive, inclusive, and nation-wide, began soon after the declaration of war in Europe in 1914, when American factories began to make munitions in great quantities for the Allies.

Munitions must be made with an accuracy to which general production is entirely unaccustomed. The transfer of hundreds of thousands of factory skilled and semi-skilled workers and other hundreds of thousands of workers from other occupations to the production of articles of war confirmed and enlarged all previous statements and fears concerning the lack of technical skill in America, at the same time that it strengthened our previous confidence in the native powers of adaptability, intelligence and initiative of our wage earners.

A few illustrations typify the situation. In 1917 and 1918 when conditions were most acute, some four million men had

gone to the Colors; millions were needed in the factories and yet there was much idleness. Mr. Henry D. Sayer, of the New York State Industrial Commission then said:

> "In Syracuse about 2,500 men, who are so-called machine hands, are out of work. They are not adapted to any particular line of work and are unable to tolerate out-door labor due to the cold weather. We have calls for machine-shop jobs, for typewriter work, etc., but the majority of the men are unable to do this kind of work due to their inability to adapt themselves to particular lines."

Said the manager of the Albany office of the commission:

> "Semi-skilled and unskilled workers are quite plentiful. One out of ten alleged mechanics applying for skilled positions is a first-class man; the others are unable to make good."

At another time a representative of the U. S. Employment Service said:

> "Last week there were 9,000 idle mechanics in a small New England district. The railroads wanted 800 locomotive repair men but we could recommend for their consideration only 210 out of the 9,000. The roads wanted hundreds of boiler makers, but only one in ten of the boiler makers who applied was good enough." Of all these men, said he, "Thousands are almost good enough, they just miss it."

2. It was in consideration of such conditions as here pictured and others, that Mr. Samuel Gompers as Chairman of the Committee on Labor, of the Council of National Defense, as one of his first acts, established in his department of the Council, the Section on Industrial Training for the War Emergency, and invited into the service of that Section many of the country's ablest production engineers, employers, representatives of labor, and vocational educators.

The central office was in the Council of National Defense in Washington and directed by substantially equal numbers of representatives of wage earners, of technical education and of employers. District Association committees were formed in each great industrial section east of the Mississippi.

The first endeavor of the Section was fully to inform itself, through the official representatives of England and France, of accomplishments in those countries. We found that they, in the face of even severer handicaps, had developed methods that with astonishing dispatch, made accurate machine operatives almost over night of men and women who never before had worked at machines.

The making of operatives, however, was the least difficult task. Great numbers had to be trained for high places and difficult tasks involving extensive knowledge. By the same process, promising operatives were trained for higher and higher places, hence the English term "Upgrading." In France, training was so successful and methods so definitely worked out that the Government came to require every factory with more than 300 workers to put in a training department for the Upgrading of workers. The British Ministry of Munitions made the same requirement through clauses in their contracts for supplies. So far had the work in this country proven its value that two at least of the great sectional departments of production of the War Department had decided to require these training departments in the factories from whom they purchased.

The method here, as abroad, was to set up in each factory in a separate room or rooms, type machines, thereby constituting a miniature factory, or ideal school, machine shop, and to train each worker there to approximate perfection on the job he was later to do in the shop. Where the nature of the work or the great size of the machines used did not warrant of segregation, type machines were designated or tagged in the factory for training purposes only, under the supervision of men especially fitted to instruct and steeped in the ideas and processes of production.

3. It was soon discovered that there were at least two remarkable training departments already highly developed in this country. Their owners opened these departments and their wealth of information to all who might profit thereby. The Recording and Computing Machine Co. of Dayton, Ohio, through its training department had organized a force of 4,000 or more women, college graduates, nurses, sales girls, domestic servants and others, and by adding to the provisions of its training department, shop-rest periods, mid-morning and mid-afternoon, a system of follow-up that made the training-room graduate at home in the shop,

and other advantages, like delicious hot meals at cost, had proven that machine operations have no relation to sex. This company shortly reached a production on time fuses four times greater than a group of experts at first thought possible. It reached the Utopian position of paying the highest wages in the United States on this product with the lowest unit cost. The Norton Grinding Company had developed a similar training department but different in that its workers were given an all-round knowledge that enabled them to adjust their machine frequently in changing from one accurate product to another in the making of power machinery. Through Upgrading this company made a butcher into an expert workman and instructor. It trained job bosses, foremen, draftsmen, etc. It doubled wages in the course of the war but increased unit wage cost only 50 per cent.

4. The British Embassy gave the Section on Industrial Training an abundance of information and illustrations published by the Ministry of Munitions, which was of inestimable advantage, largely eliminating the fear of experimenting from the minds of American employers. The greatest munition factory in America was visited. Said the Vice-President of Production: "Your plan is good but it wouldn't work here." I showed him English women making his product successfully, as pictured in the British pamphlets. An hour later training was decided upon and soon he had farm boys and women turning big guns, doing most accurate milling in the tool room, etc., and later he was spending on intensive training at the rate of $500,000 per annum. Similarly a great producer of airplanes in Buffalo, the Curtiss Company, thought that training could not be applied there. Immediately upon seeing the British pamphlet on airplane construction and its statement that there was no part of an airplane or its engine that women were not producing satisfactorily in England, he invited me to use the wires and start what became one of the most interesting and successful training rooms in America for "repeat" operations, involving expenditure at the rate of $470,000 per annum. The Wright-Martin Aircraft Corporation of New Brunswick supervised by one of the greatest production engineers in America, was spending in its training departments in two or more plants at the rate of $740,000 per annum. In these and the 250 to 300 other factory training departments these items of expenditure were mostly wages and netted a tremendous saving over the old method of breaking in help. Per capita production and the

general shop spirit were both much improved. The Illinois Tool Works of Chicago, has put through its training department one-fifth of all its employees and the good work goes on. Its training is especially broad and valuable to the worker, fitting him to go readily from a few pieces of one type to a few of another quite different. The Packard Motor Car Company arranges its machines in groups so that each major piece produced is made by the necessary machines placed next to next in segregated areas. It trains each operator in the group to handle all its machines. The Bullard Machine Company of Bridgeport, manned (largely women) its entire factory with a few skilled machinists, unused to gun making, and the others from quite other occupations intensively trained in the factory. It was interesting to see women from stores, box and candy factories, used to $1.00 a day, and wives of soldiers turning six-inch cannon and milling perfect breach mechanism at $5.00 a day.

Mistakes were made. Some factory training departments were a sham. As Britain warned us, "let no one think that he can put over a door, 'This is a Training Department,' and leave it to care for itself." Some had incompetent directors. I remember recommending a Massachusetts Tech man who had long taught in a Trade School, and finding him worse than a failure, because ignorant of the principles of intensive production, a poor manager, and unable to secure the co-operation of the plant managers and foremen.

I have mentioned women frequently in this statement partly as a tribute to them, but especially because the Vestibule School which made many women excel many men in mechanical performance, showed what might have been done with our men for fifty years past if they had been given this sensible, intelligent, honest introduction to their tasks that was thought necessary for women whom everybody knew could not by nature be mechanically superior to men and many thought were inferior.

The service in the Council of National Defense like all others there, was voluntary. It so demonstrated the value of the work that Congress, in the summer of 1918, transferred it to an executive arm of the Government, as the U. S. Training Service, Department of Labor, with an appropriation of $150,000, where the work continued on substantially the same lines with an important extension. Experts were assigned to various trades other than the metal and building trades. These other trades

employ a large part of the 80 per cent of our industrial workers whose occupations have never been considered by vocational educators and have no formal or accepted methods of training—virtually all "pick up." The expert assigned to a trade had the assistance of a committee of the ablest producers in that industry who opened their shops and records to him. Bulletins on some dozen of these trades were issued by the U. S. Training Service (which ceased to exist in June, 1919) and are now obtainable from the Bureau of Statistics, Department of Labor. The best of them give the reader a new and a broader conception of the opportunities and obligations of vocational education.

5. May I tell of a few of our discoveries concerning which there is general agreement among all who are experienced in the movement:

(1) Apprenticeship.—We know that men learn many times faster when the thing taught meets an immediate need and gives immediate profit. We believe that what amounts to a full apprenticeship course (usually four years) in matter of educational content can be given in from a third to half less time in factory training departments by the Upgrading method, with full wages. It is next to a make-shift to compel an apprentice to learn, between 16 and 20 at half wages, all that he is likely to ever learn through formal training. It may be better to have a big training room with a director from an engineering college, skilled in production, as is the director of the Illinois Tool Company, and constantly watch the promising worker and continuously upgrade him. At any rate the latter method must be worked out fully for whatever it is worth. It will reach thousands where apprenticeship reaches dozens.

(2) Vocational training as given in our public schools has substantially no relation to the needs of ninety per cent of our industrial workers. It is substantially confined to the metal and building trades which employ less than ten per cent of the workers. Investigations in the needle trades, in shoe making, rubber boots, textiles, etc., have resulted in as great improvements through training as in the metal trades. Not even in the metal trades is there any such need for mathematics and scale drawing as our schools imply. I remember my astonishment at meeting a young woman in the tool room of the Bethlehem Steel Company after a week's training, milling extremely accurate parts and setting up her machine. But the joke was on me.

The process sheet told her how to set the index. She only had to read.

(3) The Teacher.—Industry is production and nothing else. It is a doing and not a knowing. The knowing is incidental to the doing. No teacher is worth while (except in purely related subjects) who is without a highly developed production sense. This can be developed only by the severest shop experience. The work is crying for a host of teachers who have these two faculties of production and instruction combined. It will pay royally. I wish I might tell you of one such teacher who, in two and a half years, has gone from $3,000 a year as director of one of our three best trade schools to $10,000 a year, with no sign of stopping. But his mind is as open to impressions as wax; he listens through his brain and will, and not his ears only; he eats up work; he has developed a moral sense that would no sooner permit him to stop with the average vocational instructor's term of 30 hours work per week for 36 weeks per year, a total of 1,080 hours in a year of 8, 760 hours, than to accept charity; he probably averages 9 hours work for 300 days, a total of 2,700 hours; what he doesn't know he asks about; he never bluffs. Many other men are like him and are getting to the front in proportion to their ability; but always by this road. I know of many places wanting this type of man, and I see men falling out of good places because they cannot or will not meet the necessary requirements. It is a pleasure to see the new type coming to the front, and included in their number many men from the formal schools.

The scientific "factory training department" is as simple as Newton's apple and Watts' tea kettle. It is of greater consequence because it deals both with natural forces, and especially with the powers and aspirations of man himself, and with their development. There is greater demand now than ever before for these departments and for men capable of directing them. Movements are afoot to co-ordinate developments and establish one or more central agencies of investigation and information.

II

VESTIBULE AND UPGRADING SCHOOLS OF INDUSTRY: FROM A MANUFACTURER'S VIEWPOINT

E. A. BARNES
General Superintendent, General Electric Company, Fort Wayne, Ind.

There is no doubt but that for a number of years the "hit and miss" principle of hiring and training new help was not appreciated for its lack of results. It seemed to be the accepted method and industries adhered to it, for reasons that are hard to explain. Under the conditions that then existed, new employes ran their chance of ingratiating themselves with the employers, foremen and others, and in a great measure depended on their own initiative and personal ability to learn the trade. If there were any inherent defects or shortcomings in the methods, they were naturally handed down from one operator to another, and in time became accepted as the only and proper way. The quantity of production and other considerations that governed conditions in those days did not, perhaps, in themselves call for intensified specialization along certain productive lines, but—

With the coming of the war and the necessity for doing something unusual and, perhaps, revolutionary, industrial training became a natural necessity. In our own plant when we were confronted with the loss of, perhaps, 20 or 25 per cent of our employes from various causes incident to the war, we decided (after a comprehensive study of the situation) that the vestibule training of women was the only solution. We consequently equipped a training school with modern and complicated machine tools and installed therein instructors, circularized the newspapers and picked out from a number of applicants, women of good education and physique, the age limit being from twenty-five to forty. It was a revelation to us how rapidly and efficiently these women became masters of these machine tools, which in the very nature of things were foreign to their previous associations. As a matter of fact, today in our works we have at least twenty of these women who were trained, occupying positions in our tool rooms and other workshops where the training thus acquired has been of great value to us and a splendid acquisition for them.

I may say that during this training process they were working on regular production, screw machines, milling machines, drill presses, grinders, and were turning out finished work to be used and sold. Our records show that after the first day or so the work produced by these women was subject to no greater inspection losses than the regular production turned out by the supposedly, qualified men throughout the establishment.

With the signing of the armistice we naturally stopped the training of women for machine shop work, but felt that the lessons taught were sufficiently impressive that we decided to substitute a class for the upgrading of our male help, as well as teaching specialist trades to returning soldiers and others who had received no previous mechanical training. We took our own employes, of ages up to fifty-five, and gave them special intensive training along the lines in which they had become familiar. We found people who had been working for us for from five to seven years who could not read blue prints or gauge properly with micrometers, yet whose occupation for years had involved the turning out of accurate work; it was simply done by the gauges fitting the work, and not by any mental comparison on their part. Three to six weeks in the Training Room where blue print reading and easy mathematics and arithmetic were given them for a period each day, soon developed the latent ability in these people and naturally produced better employes. We have since added very considerably to our equipment and feel that it would be not only a mistake, but an actual loss to us to even curtail the activities of this training department.

There is no doubt but that individual corporations and firms can institute training sections of their own, but it is my belief (and I have so expressed myself on former occasions) that it needs some well known, unselfish and disinterested organization to get behind a movement of this kind and co-ordinate the different ideas and encourage their adoption and extension throughout the industries, where such training is in itself virtually an unappreciated necessity. A thing of this kind can hardly be accomplished by an organization designed primarily for gain or profit; it must be done in a way that removes commercialism from its activities absolutely, else there is always the question of who is getting the big profits from this service.

While the writer has read innumerable articles on the benefit of industrial training as applied to other industries, he prefers to

confine his remarks to those in which he is personally familiar. In our own case, the training of both men and women specialists, to become proficient and expert operators on lathes, milling machines, grinders and other instruments of precision and accuracy, as well as the special training of employes for armature and field winders and work of importance in connection with electrical manufacture, which, as I have already stated, has taken the place of the ordinary hiring or 'hit and miss' principle that has prevailed before.

In our plant, in addition to the Vestibule School, we are developing a corps of women, picked from the ranks of the workers, whom we call "Personnel Workers," but who in reality see to it that newly employed women are given proper instruction and introduction into the works organization. Instead of letting strangers come in and, by a gradual process, become assimilated, —we deliberately take them in hand and see to it that they are not allowed to become strange or lost or in doubt. These Personnel Workers are able to instruct new employes, in a great measure, in the work that they are expected to perform, and they stand between them and the other enployes and the management to see that they get a fair and intelligent introduction, as before stated.

We also have a Drafting School for men,—a one year course.

Our Apprenticeship School for High School graduates, which is different, of course, from the Vestibule or Upgrading sections, consists of (a) Electrical Tester Apprentices—three years, (b) Drafting Apprentices—three years. For Common School graduates:—(a) Machinist Apprentices—four years, (b) Pattern-maker Apprentices—four years, (c) Foundry Practice Apprentices—four years.

In addition to this we have a large force of student engineers, college graduates, who are given a one-year special course in the shops, after which they are used in our commercial departments, engineering departments and other factory and office work to which they have been previously assigned.

In our regular shop apprentice departments we have a corps of competent instructors who give these apprentices an hour and a quarter each day in mechanical drawing, shop mathematics and business English. In our Vestibule Training School each man gets at least three hours a week in mathematics and blue-print reading, based on his individual need. This includes, of course,

the reading of micrometers and the value and meaning of decimals. We have found from experience that from four to ten weeks should be spent in the Training School, depending, in a measure, on the class of work that the young man is to perform, as well as his individual ability. If at the end of a week it is felt that he cannot develop into a first-class specialist, we change him around and try and pick out some other work for him where his natural ability, or lack of ability, can be used to the best advantage. In other words, our principle is to try and save the "industrial derelict" as well as the bright young man who has never had an opportunity.

As I have stated before, we insist on our Vestibule Training School working on productive work entirely; even the first job that a man is given to perform is expected to be turned out so that it can be used. In order to arrive at these results, we have an understanding with our Production Departments whereby a certain percentage of the regular work of turning, boring and machining is diverted to the Training School, in proportion to the number of people being trained. In fact, we have had occasions where we have run our Vestibule School Training overtime, because of the fact that the shop depended on their output to make deliveries, and it was up to them to get it out.

I have already alluded to the fact that we teach in our Training Schools (from three hours a week to 1¼ hours a day) drawing, mathematics and business English—as it is felt that in many cases the practical experience would be only thrown away unless the reasons for these figures and related accuracies, etc., were also impressed on the mind of the employe undergoing this special training.

It is by no means always an easy matter to get experienced instructors for these schools. It must be appreciated by most people that to be a teacher or instructor requires a special type of patience and perseverance. These attributes are not usually found among first-class mechanics. It is useless to try and get anywhere with a first-class mechanic who has no faculty for imparting his knowledge to others. On the other hand, the pedagogue of the class room who knows nothing about mechanics and how to run a machine tool is equally out of place. It is therefore absolutely necessary to get a combination of both to take charge of this work, and then depend on his assistants being specialists—not necessarily in both mechanics and teaching, but preferably so.

We have found, among other things, that it is desirable and, in fact, necessary to be liberal in the payment of these men undergoing training, as they cannot appreciate the value of the education if they are in any way stinted in their pay envelope. For this reason we have made it a point to pay them wages somewhat approaching the wage they have been accustomed to earning in the shops before they took the course, and in many instances they have been able to very considerably increase their earnings immediately after leaving the Training School. Each employe who leaves the Training School is given a certificate or diploma, which indicates that he has had so many days, hours or weeks special training. This gives an air of importance to it, the psychology of which is well worth the price of the said diplomas.

In closing I wish to say that the more we get into this training business, the more value we can attach to it. Every man we graduated is better for it in every way, and they feel a moral obligation to us for having made it possible for them to acquire this knowledge which they lacked, and for which, in many cases, they actually suffered.

THE TRAINING OF FOREMEN

GEORGE E. MYERS
Professor of Industrial Education, University of Michigan, Ann Arbor, Mich.

The foreman's job demands serious consideration as a factor in the present industrial situation.

Industry is facing low per capita production, enormous labor turnover, bitter disagreements between capital and labor, and a radicalism that seeks to overthrow completely the present industrial system. The foreman is the connecting link between management and men. He is the one who puts production methods into effect. He puts across to the men the policies of the company. In him the men read the attitude of the company towards them. He, more than anyone else, "sells" the company to the men. He first feels under-currents of dissatisfaction and is in a better position than anyone else in the organization to remove or reduce dissatisfaction in his department.

And foremen, unlike, poets, are not born; they are made. With 7,000 of them in the single city of Detroit they are far too numerous to share the alleged good fortune of the poet.

How are they made? Too often as the young Indian is reported to have been made a swimmer. They are thrown in where it is over their heads and left to get out as best they can. Most Indian boys learned to swim—but many of them swam dog-fashion or any other fashion that kept their heads above water and not with the long, steady, side stroke that carries the swimmer through the water with the greatest ease and swiftness. Most men assigned to the job of foreman manage to "get by," to keep their heads above water, and some of them become very proficient both in getting out production and in handling men. But many never get beyond the "dog-fashion" stage. They never even have a clear conception of the functions of a foreman, to say nothing of learning how to perform those functions in the easiest and most efficient manner.

To be sure the complete failure of a foreman is pretty well guarded against by the manner of his selection. Usually he has already made good as a workman in the department which he is chosen to head. Often he has shown certain qualities of leader-

ship which have attracted the attention of the superintendent. In some instances he has been tried out as assistant foremen or has served as an understudy to the foreman of the department in which he has been working. However, almost without exception he is chosen on the basis of general impressions of his qualifications rather than on the basis of a careful comparison of his qualifications with the requirements of the job. And, once chosen, it is up to him to get out production—and to find out for himself how to do this.

A few large companies have made a beginning in systematic training of their foremen. Among these are the Submarine Boat Corporation, The National Carbon Company, The International Harvester Company, The Packard Motor Car Company. A considerable number have encouraged foremen to take correspondence courses dealing directly with foremanship and have arranged to share the expense of such courses. In some States those institutions responsible for training teachers of trade and industrial subjects look upon this as one of their problems and are conducting courses for foremen at the present time. In the main, however, the training of foremen in a systematic organized manner, especially in small and medium sized plants, is still untouched.

Granting that the foreman occupies a pivotal position in industry and that he is badly in need of training, what kind of training should he have? There are three possible lines that seem important:

1. Training in the technical aspects of the work supervised. It is usually taken for granted that foremen know thoroughly the technical side of the work in their departments. As a matter of fact they are often quite ignorant in this respect, especially if their trade is highly skilled. They avoid exposing this ignorance and in this way perpetuate it. If they can be brought together as foremen, with none of their men present, many of them are glad to avail themselves of the opportunity to learn the fundamental theory, the mathematics, the sketching, the science or whatever technical subject it may be that is of direct value to them in supervising the work of their departments. This kind of training for groups of machine shop foremen has been given successfully for several years by Cass Technical High School, Detroit.

2. Training in handling materials and equipment. A fore-

man must know how to plan and organize his work so that the raw material of his department comes to his men as needed without unnecessary delay; how to route the material through his department in the manner most conducive to efficiency and with the least loss of time; how to keep each machine and tool in condition for maximum production; how to keep production records, etc. Certainly here is need for a large amount of instruction.

3. Training in handling men. Recent developments in industry have emphasized as never before the importance of the art of handling men. In fact we are passing through an industrial revolution quite as significant as the one recorded by the historians, with this difference that the present revolution emphasizes the human element rather than the mechanical element in industry. We have learned that, by wise handling of the men in his department, the foreman can not only increase production but what is equally important, he can also help to reduce wasteful labor turnover, build up a loyal, cooperative, thinking group of workers and prevent the development of unreasoning radicalism. But in order to do these things the foreman must have acquired somewhere, somehow a few fundamental principles of psychology and economics, though he may never have learned the meaning of these words. He must know the characteristics of the "adjustment period" and of the "expert worker" period and how to deal with the worker in each. He must be able to recognize individual differences and to make allowances for them. He must know the different ways of stimulating interest and how to use them. He must develop skill in the art of getting his men to make suggestions. He must know when and how to put it across to his men that production is the only basis of prosperity, that direct action would destroy not only capitalism but the things which the worker holds most dear as well, that the square deal on the part of employer and employee both is absolutely essential to the best interests of both, and so on through a long list.

Here is subject matter quite as worth while for the average foreman as that which deals with handling materials and equipment. In my judgment it will yield larger returns to the company and to the men for the effort expended and will be fully as interesting to the foremen, if presented in the right way.

This raises questions of class organization and methods of

teaching. There is not time to take these matters up in detail but a few things may be noted. Classes conducted in industrial plants should meet on company time. There will be need also for some classes which meet evenings on the men's time. Sessions should be about an hour and a half in length and should occur once or twice a week. The entire length of the course need not be more than six months, and a great deal can be accomplished in half this time. The number of foremen in a class should not exceed twenty or at most twenty-five. The same instructor should conduct the course from beginning to end, with provision for an occasional lecture by some one else, followed by questions and discussion.

A serious criticism of some of the courses for foremen now given by large companies is that the courses consist of series of lectures by different representatives of the company, without adequate provision for discussion and come-back on the part of the men. The subject matter of such a course should not be poured into the men by the lecture method. The instructor is not expected to do the foreman's work for him; why try to do all his thinking. Let him stimulate and guide this thinking instead. The instructor should make extensive use of multigraphed lesson sheets, with problems to be worked out and reported upon. He should use abundant illustrations, and be able to draw illustrations from every member of his class.

So far as possible what is discussed this week should be tried out by the foremen and reports as to its success or failure brought back for criticism and discussion next week. The instructor's constant aim should be to see that the principles which make up the course function—that they get into action if you please—as soon as possible in the various departments represented. Giving intellectual assent to a principle is not enough. It must be put into action; and the sooner the better. The instructor should follow up the work done in class by visits to the foremen at work seeing that what has been taught is carried out, giving individual suggestions, answering questions, and gathering illustrative material for the class periods.

You are right in the conclusion you have doubtless drawn that the instructor who can do with a class of foremen what has just been outlined is a *rara avis*. Very few are to be found to-day either at large or in captivity. We shall have to develop the species.

I can not better indicate what seems to me first class qualifications than to say that a man whom the University of Michigan has on this job, with the title of Associate Professor of Industrial Education, has had a technical education, served an apprenticeship, worked at his trade several years, was foreman two or three years in a large plant, later studied economics, psychology and education and finally was engaged in training teachers of industrial subjects when transferred to his present work. In addition he has natural ability and personality that fit the job.

There is no question in my mind that some of the State universities engaged in training industrial teachers should organize the training of instructors for foremen's classes. We are definitely considering work of this character at the University of Michigan. Already the Submarine Boat Corporation has recognized the necessity of training men as instructors and has arranged for them to give their entire time to instruction after training.

To what extent is the training of foremen a public educational problem, and to what extent should it be cared for by employers? Many large companies will prefer to train their own foremen, giving special attention to the problems and methods peculiar to their own organizations, each company maintaining its own group of instructors for this purpose. But the smaller plants will not be able to handle this problem adequately; and far more foremen are employed in small plants than in large ones. In one of the principal industrial cities of Michigan which has a population of 150,000 no plant has as many as 1,000 employes and only six have more than 500. For the smaller plants public provision must be made or there will be none.

Granting the responsibility of public educational authorities for part of this problem, shall the training of foremen be classed as trade-extension work and thus be done in each city by the local department of vocational education, or shall it be called teacher-training work and be conducted by the State institution which trains industrial teachers?

In my judgment much of the training needed by foremen is not essentially different from that needed by industrial teachers. The foreman's job is not to do the work of his department. It is to lay out the work and assign it; to provide every practicable facility and incentive to his men to do the work; to train them in the best methods of doing it; to develop in them the best

habits of work and the right ideals concerning it; to bring about a spirit of cooperation or team work and a desire to stay with the job and the company. Are not these functions very similar to those of an industrial teacher?

On the other hand, it is insisted that the foreman's job is a distinct trade and that such training as has been discussed above is supplemental to employment and therefore trade-extension in character. True, but we give trade-extension instruction to teachers in service and call it teacher-training. If the subject matter is essentially similar, why not call it by whichever name gets the best results?

In Michigan there is no question that for several years at least the best results can be obtained under the name teacher-training. Outside of the large cities there is little reason to hope that this problem will be touched for years to come as trade-extension work. Even in the larger cities it is much less likely to be well done under this name because of the limitations placed by city salary schedules upon getting the right instructors. However, if foremen training is to be undertaken in a comprehensive manner as teacher-training work, it is absolutely essential that the funds for teacher-training be largely increased.

In whatever manner the problem is dealt with, this certainly is true that the State Supervisor and the director of teacher training for trades and industries have here a unique opportunity to promote a piece of industrial education of great importance in itself, and one which will have marked influence upon the entire vocational education movement. They should work out the problem together, in cooperation with city directors of vocational education and with representatives of industrial plants. They will find, as we have found in Michigan, that nearly all employers are keenly interested in foreman training. An occasional one may say, as one plant superintendent in a Michigan city recently said: "What we need to do is to give them less of this Sunday School stuff and more hell." But where one has taken this attitude literally dozens have asked of their own accord, when they learned what we are doing, that we arrange to train their foremen also. The idea is already sold to the management. It is not so easy to sell it to the foreman, but it can be done, as is evidenced by the success of foremanship classes in a number of cities throughout the country.

DISCUSSION

ARTHUR F. PAYNE
Head Department of Trade and Industrial Education, University of Minnesota, Minneapolis, Minn.

This particular problem of foremanship training is the most important problem that we have in the entire field of vocational education. It is important from the standpoint of the industries and their relation to our school system; from the standpoint of the foreman who is at present the most important and at the same time the weakest link in any of the various schemes of industrial organization; and finally, it is important from the standpoint of vocational education, particularly of trade and industrial education, as the training of the extraordinary mechanic who will be the logical foreman is generally accepted to be the ultimate aim of trade and industrial education.

Just at present, I am seriously concerned about the future of vocational education. I am afraid that we are going altogether too slowly. We are still thinking in terms of mediaeval education. We must think of education as a vital part of our changing, evolving social order, and those of you who have followed the various movements in our industrial and social organization realize that we are changing and developing at a very rapid pace.

I am particularly interested in this specific phase of vocational education because it comes in between the needs of the industries and the needs of the individual and of society. When we get the right point of view and develop the scientific attitude of mind in regard to vocational education and especially in regard to the proper training of the foreman, it is going to have a beneficial and a decided effect on many of our industrial and educational problems.

There are many things which I should like to say to this particular audience. My own experience in the industries as an apprentice, as a foreman, and as a factory owner, has developed certain points of view that I fear many of you would not agree with. At the present time I feel that we advocates of vocational education are even now out of step with the known needs of society, radical as many of our academic friends think we are.

In our discussion and plans for vocational education, we are not taking into consideration the tremendous development

and evolution which Dr. Myers spoke of, which is now taking place in industry. During the past ten years there has been almost as great a revolution in industry and in industrial methods as there was during the period from 1790–1890, which is now known as the period of the "Industrial Revolution." This recent change in industrial methods and industrial organization has come about through scientific research and the application of scientific methods, and this cause and its effects have already put our vocational education theories five or ten years behind time. We educators simply must recognize and face conditions as they exist.

But we are here to discuss training of foremen. Before I can discuss that topic with anyone, I should want to know just what his conception of a foreman is. I am quite sure that the meaning it has in the minds of the majority of this audience is quite different from the foreman that actually exists in many of the large plants today and quite different from the foreman of the future who is being developed through the application of scientific methods in industrial personnel. The majority of you probably have in mind as an ideal foreman, the man who has served his apprenticeship at his trade, has had long experience as a journeyman, has become very expert in handling and manipulating tools, materials, and processes, and by virtue of his personality, knowledge, and skill, has come to occupy the minor executive position of foreman.

We must stop and analyze for just a moment. The qualities that made this expert worker a success are not necessarily the same qualities he will need in this new position of functional foreman under the most advanced type of industrial organization. The old, highly skilled, shoptrained foreman is passing away. We no longer have a machinist trade in the large, scientifically organized production plants, although they may still have them in the smaller, non-standardized plants that are still operating under the old-time, patriarchal type of organization.

The duties and responsibilities of the old-time foreman have been broken up and distributed among the so-called functional foremen. His work has been broken up into seventeen distinct functions and these are placed in the hands of specialists. These functions are as follows: employment, routing, planning, motion study, time study, repairs, inspection, time and cost, instruction, speeds, tools, health, safety, discipline and complaints, materials

and stock, welfare and recreation. So, the oldtime foreman is no longer a necessity. He has been wiped out by large scale production and scientific methods. It is no longer necessary that all these functional foremen should be highly skilled in the manipulative processes of the work which they are producing. Under the new, scientific, functional type of industrial organization, there are men on all of these functions, of which manipulation and tool processes are only two, and they all come in as highly trained specialists. Those of you who have followed the development of industrial organization or have anything to do with factory management know that this is true.

Our industrial organizations have developed very rapidly during the past decade from the old, "patriarchal" form to the "line and military" form. From this they have developed to that form known as the "line and staff" and even now are abandoning this in favor of the newer "functional" type. Educators generally and vocational educators specifically are not keeping pace with the rapid development of our social and industrial order. The war cracked our shell but even now some of us are fairly well protected against the intrusion of new points of view and new ideas.

In one of the biggest manufacturing plants in Minneapolis I have had classes of a little more than one-hundred foremen and superintendents. The title of the course is "The Foreman's Part in the Management of Labor." There are twenty mimeographed lessons. Each lesson has its questions to be answered or assignment to be worked out. Through these assignments each member of the class has made a complete analysis of at least one job ir his department in terms of labor requirements. The titles of these lessons are as follows:

1. **The Evolution of Our Present Industrial Order; Machine Factory Organization.**—The point here is simply to give the workers and foremen an opportunity to see how this big thing which we sometimes bless and sometimes curse—our modern factory organization—has developed.

2. **The Evolution of the Factory System. Its Effect on the Status of the Worker.**—Here a study is made of the tremendous improvement in the status of the worker that has come about through more scientific methods in the forms of production.

3. **Principles of Modern Factory Organization.**—Here we begin the general study of the principles of efficiency and

scientific management applied particularly to personnel problems.

4. This study is continued in No. 4 by a study of the **Establishment of Standards as Required in Personnel Management.**

5. The study is continued in No. 5 by a Study of the **Records Necessary in Personnel Management.**

6. In lesson No. 6 we begin the **Analysis of the Job and the Statement of Characteristics Necessary for Success on the Job.** First the job is analyzed for physical characteristics.

7. **Job Analysis and Statement of Educational Qualifications Necessary for Success.**

8. **Job Analysis. Measuring of Trade Knowledge and Trade Skill.** Here an extensive and intensive study is made of the army trade tests as worked out by the Personnel Division of the War Department during the war. The assignment for each of these lessons is in terms of the one job which the foreman is analyzing in his own department.

9. **Job Analysis. The Definition, Testing, and Measuring of Special Aptitudes for Specified Occupations.**—In this lesson the necessity for a system of bringing the right individual to the right job is shown. This is necessary for the happiness of the worker and for the sake of increased production.

10. **The Army Mental Tests. "Alpha," "Beta," and Individual Intelligence Tests.**

11. **The Binet-Simon Scale for Measuring Intelligence and the Stanford Revision of the Binet-Simon Scale.**

12. **The Complete Psychological Tests Used in Three Large Concerns.**

13. **The Selection of Men. Psychology versus Phrenology.**

14. **The New Type of Foremanship Required by Modern Industrial Organization.**—In this lesson a study is made of four common types of industrial organizations. These four types of organizations are worked out in chart form.

15. **Functional Foremanship. The Foreman as an Instructor.**

16. **Functional Foremanship. The Psychology of the Worker. The Instincts.**

17. **Functional Foremanship. The Psychology of the Worker. The Impulses.**

18. **Functional Foremanship. The Personality of the Foreman.**

19. **Functional Foremanship. The Responsibilities of the Foreman.**

20. **The Foreman as a Factor in Industrial Relations.**

21. **List of References of Books and Periodicals.**

In conclusion, it is very important that as educators we keep in mind the three factors in our general industrial situation as it exists today,—the employer, the employees, and the public. We must not play favorites. This neutral position will be difficult to maintain, but must be maintained at all costs. When our educational system and particularly our vocational education system is placed upon a thoroughly scientific basis, it will mean the solution of many of the difficult problems now facing the employer in regard to increased production and efficiency in management, the employee in regard to opportunities for advancement, adequate reward, incentives, and freedom from uncertainty, the consuming public in regard to lower costs.

VOCATIONAL TRAINING IN FACTORIES—SHALL THE STATE FOSTER IT?

K. G. SMITH
Professor of Trades and Industry, Iowa State College, Ames, Iowa

The question for consideration is "Vocational Training in Factories—Shall the State Foster it?" Foster, as I understand it, means to promote, encourage, supervise and pay for, in whole or in part. The state may foster this type of vocational training directly or indirectly. Let us first consider the method by which the State may foster it indirectly.

Indirect Method of Fostering Vocational Training in Factories

By the indirect method I mean that the State supervises and pays for the training of instructors who, in turn, instruct learners in shops and plants. The salaries of these shop instructors are paid by private firms.

In my opinion the use of State and Federal funds to provide training for men and women who are already employed by or expect to be employed by private firms as skilled instructors is one of the most progressive steps taken in vocational education in recent years. It fosters one of the most effective methods of instruction, brings together education and industry and tends to create a sympathetic attitude toward vocational education among employers and employees. It is my belief that a collegiate institution will have more influence on a State program for vocational education, through extension classes for men and women who teach and supervise in shops and plants, than it will through four-year collegiate courses for prospective teachers no matter how carefully they are planned. I believe, too, that the development of these extension classes will exercise a profound and benficial influence on the character and content of resident courses which will, no doubt, be needed later.

Our most effective industrial teachers will come from these classes, but unless the pay of industrial teachers in the publicly supported schools is increased, most of these men and women will continue to draw their salaries from private firms. From teacher training classes of this type have developed the classes for the

training of foremen now receiving so much attention in Chicago, Cleveland, Cincinnati, Grand Rapids, Minneapolis, and elsewhere. The arguments for the training of shop teachers under State supervision and at State expense hold equally well for the training of foremen and the field is no less important. The question as to whether this should be done as a part of teacher training work or as a part of trade extension work does not concern us at this time. Suffice it to say that State and Federal funds are being spent for the training of both teachers and foremen.

Direct Method of Fostering Vocational Training in Shops and Plants

By saying that the State fosters vocational training in factories by the direct method, I mean that the salaries of teachers instructing in private plants in vocational subjects are paid wholly or in part from public funds.

The training given in shops and plants divides itself into three classes: general continuation work, trade extension work, and training in trade processes. For the sake of completeness I have included general continuation work, though it is not of a vocational character.

So far as I am able to find there seems to be little objection to the teaching of general continuation or trade extension work in private plants by teachers paid from public funds. The work may be of the part time or part time cooperative type or evening classes. Some there are who object to having the school located in a private plant. They say that the school is too likely to be dominated by the employer, that instruction will be commercialized, that pupils will be called out of or kept out of classes too easily. I do not believe these objections are valid.

I have spoken as if all objection to conducting classes in factories under public supervision came from the school authorities. This is not the case. Manufacturers themselves at times have risen and rebelled against having even trade extension and general continuation work taught under the public school system. They have said "We prefer to hire our teachers and to handle the job ourselves." They have tacitly felt and sometimes openly expressed a lack of confidence in the ability of the school man to do a creditable job in vocational education.

We may safely say, I think, that at the present time both educators and manufacturers favor public supervision of trade extension and general continuation instruction even when given in the factories themselves. Trade extension work in this statement does not include instruction in actual trade processes, but rather instruction in related subjects. It is up to the school superintendent to give his vocational teachers and supervisors the opportunity of doing their work as effectively as possible, unhampered by prejudice as to place, time, method and content of courses. If he does this and has earnest and competent teachers there is no doubt in my mind that more and more of the basic vocational education will come under public control. If, however, past tradition supplants present vocational needs and teachers are incompetent, more and more of the kernel of vocational education will be placed in the hands of private teachers and the husks left for the classes under public supervision. There never was a greater opportunity for service offered to the public schools. It is the challenge of today. If they rise to this opportunity and attack the problem wholeheartedly their sphere of influence will be greatly increased and we shall see education and industry, so long separated, getting together. If, however, public schools look upon the part-time school as something to be avoided and unworthy of support, if its pupils are pariahs and outcasts to be handled in the cheapest way possible, if its program, methods and content of courses must conform to established systems just because they are established, we shall see the school superintendent lose his opportunity and at the same time offer the strongest argument possible for dual control.

Factory Training on Trade Processes

Before starting to discuss this subject it will be well for us to see just why no serious objection has been offered to the public supervision of trade extension and general continuation work. The reasons are as follows:

(a) The work is done in a separate class room or department.
(b) Definite time off is usually granted by the employers during working hours.
(c) The course is at least somewhat general in character.

(d) The course is similar to others approved by the school authorities.
(e) There is no interference with production routine except as the learner may leave his work for a time.
(f) This kind of instruction has usually been confined to learners of school age, at least when given on a part-time basis.
(g) The teacher is more of an incident in and a part of the productive force of the plant.
(h) The pupils are gathered in groups or classes so that the work resembles class-room work at least in this one respect.

When we come to consider training in actual trade processes on machines, we find that it presents different characteristics, in many cases the opposite of those enumerated.

(a) It may not be given in a separate class room.
(b) Definite time off may not be granted.
(c) It is not general in character.
(d) There may be interference with production routine.
(e) The instruction is not confined to learners of school age.
(f) The pupils may be widely scattered so that there is no resemblance to class-room work.

From a consideration of these various opinions it seems as if we ought to be able to formulate some constructive policy. I submit the following:

Trade extension and general continuation classes of any kind should be under public supervision whether conducted in a commercial plant or in a school building. These classes should be located where the instruction can be given most effectively to the group to be reached. In case trade extension work includes training on trade processes as in a vestibule or upgrading school, these classes also should be under public supervision and working agreements made.

In many industries it is desirable and necessary that definite, organized instruction be given on the job under actual working conditions. This instruction is necessary both for the young learners and for older men. Instructors may devote a part or all of their time to this work and receive none, a part, or all of their pay from public funds in accordance with agreements found

to be locally workable. In any case these instructors should be recognized as a part of the city and State industrial teaching staff and in all cases they should attend publicly supported teacher training classes.

Any shop in which an instructor receives a part or all of his salary from public funds must, in return, offer as broad a course of training as possible and one which meets the approval of the State and local authorities.

This means that the local Director of Vocational Education supervises and directs extension vocational instruction and the training of all industrial teachers. Over the instruction in actual shop processes he may exercise direct or indirect supervision and act in the capacity of a director or in an advisory capacity only, according to local agreement.

Such a plan will not do away with the need for the all-day trade school in the skilled trades in which large numbers of men are employed in different industries such as the machinist's, pattern maker's, carpenter's, plumber's, and joiner's trades. The plan will increase the demand for, and the scope of part-time and evening schools. The shop instructor is going to be the natural result of foreman training and the foreman training, now so emphasized, will make for better shop teachers.

If the Vocational Director does his work well, I hope and believe it will not be long before all vocational instruction of whatever sort will be conducted under public supervision. Then the Federal Board and State can say, not only to the soldier crippled by wounds, but to the boy or girl crippled by poverty:

"You shall have the opportunity if you want it and need it to be trained and placed in any one of the hundreds of occupations which the rich life of America affords."

COOPERATIVE INDUSTRIAL TRAINING

FRANK M. LEAVITT
Associate Superintendent of Schools, Pittsburgh, Pa.

It would be almost an insult to such an audience as this to explain or to describe the major objectives of the plan of cooperative industrial training, or to outline the fundamental principles of its organization, or to set forth its many advantages to the young worker.

I shall assume that the plan is understood and accepted as one of the best methods of providing industrial training. If it is at all possible for me to present anything regarding the cooperative plan that will be of value to you it will be (1) by pointing out certain facts with regard to its progress and present status in the American school system, and (2) to make certain suggestions which, from my own recent experience in Pittsburgh, would seem to indicate what, in fact, is actually involved in the term "cooperation" and how the cooperative plan may be extended more satisfactorily.

At the outset I would beg leave to call attention to a certain confusion which seems to have come about through the failure to differentiate clearly between a genuine half-time cooperative plan, where approximately one-half of each day, week, month or other period is spent in school and one-half in an industrial plant, and the compulsory continuation school plan where only four to eight hours a week are available for school purposes and where, as in most States, the children are between fourteen and sixteen years of age. These two plans are distinctly different in their inception and history but, of late, there seems to be a growing tendency to discuss both indifferently under the term "part-time education."

I have always maintained that there is little that is common to these two plans. Genuine cooperation between the employer and the school is fundamentally important to the cooperative plan, and there is frequently none whatever in the case of the compulsory continuation school. I do not mean to say that nothing can be accomplished by getting in touch with the employers of continuation school children but, even when the kindliest of feelings exist between employer and school officers, it is

frequently impossible to find any basis of cooperation in the training of such children under sixteen years of age, beyond permitting them to attend the continuation school, which the employers are compelled to do in any event. This is particularly true where the child labor laws of the State exclude children from most progressive industrial occupations.

Feeling as I do about this difference between continuation school and cooperative school work, I was pleased to note that a recent report from Dayton, Ohio, makes the same distinction, even though the Dayton continuation school plan is really cooperative. The report is entitled "The Cooperative Industrial High School and Part Time Trade Extension (Continuation) School."

At all events I wish to confine myself quite specifically to such educational plans as contemplate that at least one-half of the time per month, during the school year, shall be spent in school. As I have intimated, there can be little genuine *cooperation* unless the employer is willing to make some concessions to the broader educational program which we have in mind for these bright high school boys and girls who might, with a little urging, be induced to stay in the regular high school courses until graduation.

From the point of view of one who is anxious to see industrial education develop rapidly, there are two defects in the cooperative plan which should be noted in passing.

First, the scheme must be nurtured tenderly and constantly in order to get it under way and to keep it alive for the first two or three years.

Second, it does not grow rapidly from its own momentum after it is established.

The reason for the first defect is that the cooperative scheme, in order to be effective, must be "sold" to more people than any other plan of education. It must be sold to the employer, to his director of personnel, to several foremen, and, perhaps, to workmen who are entrusted with part of the practical training given to the boys. Of course it must be sold to the pupils themselves who are not always easily persuaded that it is better to work in their spare time than to play.

But hardest of all, it must be sold to the doubting academic high school teachers. When all other obstacles are cleared out of the road, there stands directly across the way, a stern visaged

school teacher who warns the boy that he can not possibly hope to pass creditably in his school studies if he is out of school half the time. Anyone who has tried to develop a high school part-time cooperative class will appreciate exactly what the influence of that admonition generally means to the wavering boy or girl. I may be wrong, but I have come to believe that it is best to proceed along the line of least resistance in this particular situation and I shall indicate, a little later, the organization which we believe excites the least opposition from the powerful academic group.

As I have said the work grows slowly. The first public-school system to adopt Dean Schneider's plan was that of Fitchburg, Massachusetts. I visited that school in 1910, two years after it was established. There were about fifty boys in the cooperative class, distributed among half a dozen employers and working as machinists, pattern makers, draftsmen, iron molders, textile workers and office workers. Today there are about the same number of boys and the same number of employers receiving them.

In Beverley, Mass., the schools are still cooperating only with the United Shoe Machinery Company, with perhaps twenty-five per cent more boys enrolled than in 1910.

It is interesting to recall that, during this same period the high school enrollment throughout the country has increased at least three hundred per cent without any special effort on the part of "advocates" of high school education.

A notable exception to the rule is to be found in York, Pennsylvania. In that city there were in 1919 over 170 boys distributed among twenty-three employers. In 1915 there were but 126 boys and fifteen employers. The work has developed steadily since its inauguration in 1911 and is still growing.

Other cities that will repay study in this field are Erie, Pa., Cincinnati and Dayton, Ohio.

The main question which I would discuss, however, is "What is actually involved in the term 'cooperation' and how may cooperation be brought about?"

Cooperation between the employer and the school involves mutual responsibilities and the inference is that it carries with it mutual advantages.

The employer cooperates with the school in giving the boy an all-around education. The plan puts him to a little extra work in organization and robs him, to some extent, of his absolute

authority over some of his young employees. On the other hand it is of advantage to the employer since it gives him a somewhat better type of boy, cuts down his labor turn over, and gives him some reason to hope that the young people trained will be a permanent asset to his business.

The school cooperates with the employer by finding and turning in his direction young people who are ambitious and who have some little special aptitude for or interest in the occupation involved, and some elementary training for it. The school is also put to the trouble of modifying and complicating its organization. On the other hand the school is benefited by the injection into its work of a more serious purpose and a more definite objective and by its ability to serve a larger constituency.

There is much to be said in support of a plan which we are following in our five year High School Trade Apprenticeship plan in Pittsburgh. A little pamphlet describing the Pittsburgh plan has been printed and will be sent on application to any one desiring to receive it. It is a five year plan, during the first year of which the boys spend all the time in the high school and during the last year of which they spend their full time in the industry, and the intervening years on the half-time basis. At the end of the five years, a pupil receives a certificate of apprenticeship and a full high school diploma. While it is not contemplated or even hoped that any considerable number of the boys so trained will wish to do so, the way is open for any of them to enter the engineering department of the University of Pittsburgh with one year of advanced standing if they choose to do so on the completion of the five year course.

The Pittsburgh plan permits the pupils to elect exactly the same school subjects as are elected by the full time pupils though obviously they can not carry as many subjects in a year as are carried by the full time pupils. By this plan the school work and shop work are alternated on the half day plan, one group of boys taking three subjects in the high school during the morning and their mates electing three subjects in the high school during the afternoon. By this plan the election of the pupils is not as narrowly limited as in some other cooperative plans.

If it be objected that the regular high school subjects do not correlate with the shop work my answer is that this is practically true of most of the so-called "related" school work in any event. Theoretically, there is supposed to be an actual correlation of the

shop work and the school work which enhances the educational value of the former and the practical value of the latter. As a matter of fact, however, one seldom finds in actual practice the same degree of correlation as is to be observed in the printed matter describing the cooperative plan. The more I study applied science and applied mathematics textbooks the more I am convinced that they differ in no important respect from the best general science and general mathematics books. In other words I am convinced that the correlation between the shop work and the school work, where it exists at all, exists mainly in the intelligence of the pupil himself.

In closing I would beg leave to mention another cooperative vocational plan that is well under way in Pittsburgh although it is in the field of retail merchandising and not in the field of industry. It is a plan by which high school juniors and seniors, sixteen years of age or over, may take a course in retail selling on the following basis. A pupil spends four days of each week in school and Fridays and Saturdays in a department store. He elects his subjects in the same way as the regular students excepting that he is careful not to get into courses where the teacher will flunk him because he can put in only four hours of recitation work a week instead of the regulation five hours.

One of the subjects elected must be "retail selling" which is given one hour a day for the first four days of the week and is taught by a specially prepared teacher. On Fridays and Saturdays the pupil spends the whole day in one of the cooperating department stores being paid a minimum wage of two dollars a day and having the benefit not only of the work in the store but also of certain store instruction that is provided by the Research Bureau for Retail Training under which Bureau the whole scheme is organized and administered. This plan is supported financially by the cooperating stores at an expense of $160,000 for five years. It is administered in cooperation with a department of the Carnegie Institute of Technology and it has the cooperation of the public schools. There are two teachers of salesmanship paid by the Board of Education who teach about 150 high school juniors and seniors four one hour periods a week and observe these same pupils at work in the stores on the fifth day. It is objected by some that this is not a legitimate part-time cooperative plan since the larger part of the time is spent in the school. I do not believe that this objection is valid.

Finally I wish to maintain that a genuine cooperative plan contemplates first that the pupil shall be a broadly educated youth as well as a youth who has become efficient in some vocation. It is not at all inconsistent that, in the plan of the cooperative stores to which I have just referred, the employers pay the high school students a higher wage than is paid to young employees giving full time to the store and engaged in exactly the same work. This is only a recognition of the above stated fact that the employer is getting a higher grade of employee and particularly one who will "go far" as years roll by.

I am fully convinced that it is only by following plans similar in principle to those illustrated by these examples that genuine "Cooperative Industrial Training" can be achieved. As stated before it involves responsibilities, sacrifices and advantages for both school and employer.

DISCUSSION

C. A. PROSSER
Director Dunwoody Industrial Institute, Minneapolis, Minn.

We have all listened with a great deal of interest to this rich program on the training of men in modern industry. The thought has been running through my mind and I have no doubt it is in the mind of every public and private school man present—What does all this mean to us as educators? We have listened to the story of an industrial world in rapid evolution, turning its attention for the first time in a self-conscious way to the proper training of workers, at least for the first time since the decline of the old time apprenticeship.

To this industrial world vocational schools of all kinds, public and private, must adapt themselves in the very near future or find themselves completely isolated. Do we realize how close and imminent is the danger that modern industry may be building a road around us and do the great bulk of training for itself? Should this happen, it will leave us with Federal and State and Local funds and with the income from the endowment of private schools, equipped to do work but with no field of service vital to the work of men. I personally realize it very keenly. Several points occur to me which I wish to set forth as briefly as possible.

1. The schools of the country are not meeting the needs of the modern industrial worker. He goes into many, many kinds of industry and has to meet the demands and requirements of hundreds, almost thousands of occupations. Pinning our faith to the day school, as many have, there have been set up in this country trade preparatory schools training a small handful of students for advantageous entrance to a few traditional lines of industry, which at the best do not include more than ten. They can be enumerated on the fingers of both hands: machine shop, carpentry, wood work, electrical work, printing, automobile repair and construction, plumbing, sheet metal. These constitute the major list. Of the trades just named, half have to do with one trade—building construction.

Can we expect to meet the needs of workers with such a program? Does the amount of money spent on the development of day schools giving training and skill at high cost to a small group of people for a few lines hold out any promise as a solution for the lack of trade knowledge and skill? The answer is undoubtedly that it does not.

Must the development not then be along the line of schemes of training through part-time and evening extension classes which will reach larger numbers of workers at less expense in more lines of employment?

2. We are in the evening school stage of industrial and trade education in America, as we probably will be for a long time to come. I never have been able to understand fully the strenuous way in which we as vocational men have neglected the opportunity for the proper organization of evening schools so as to cooperate effectively with industry. Time will not permit the development of this idea. It is clear, however, that the first step in such a program goes back to the proper up-grading by each manufacturing plant of positions from the least to the highest in terms of the line of promotion and the demands and requirements of positions up the line in experience, skill, and knowledge. When this has been done, it will be possible for the evening school to organize its material in short unit courses so as to afford to ambitious workers an opportunity through further training to prepare themselves for advancement to the next step in position or wage.

3. Part-time education needs to be recognized in the same way and with the same up-grading of positions in industry. The

extension of training through part-time classes will be a matter of slow growth. The compulsory part-time legislation passed by the States is undoubtedly an opening wedge, but we may expect much of this work for a long time to come to consist of classes more or less ungraded, extending the general education of workers deficient in their elementary schooling. All of us look to the part-time scheme as the final solution of our problem in industrial training. While it is developing we need to get experience in dove-tailing training with workers' needs and workers' promotion through evening classes.

4. Nor can we believe that all the training for modern industry can or should be given by schools outside the plant. Certain it is that at the present time these schools are not meeting one per cent of the total demand and need for instruction. When developed to the full in the years to come industrial and trade education will only meet a small portion of the demand.

The situation requires closer cooperation between the school and the employer and the union in those plants where the workers are organized. This must be done by extension training, because there lies the opportunity to reach larger numbers of workers who have already entered upon employment, who know their needs, and are willing to pay the price for promotion. Furthermore, notwithstanding the passage of the Smith-Hughes Act and the generous preliminary subsidies made by schools, nothing could be more evident than the lack of funds for a program of vocational training which will reach all workers in all lines.

If the work of vocational training by the will of the people is to be carried on under public auspices, in my opinion, the manufacturing establishments of this country who will profit largely by this service must pay the cost. This may mean a special tax on industry for purposes of industrial education under public auspices.

If we argue in Lloyd George's expressive phrase that "the cost of production should bear the blood of the workman," may we not also argue that the cost of production should bear the civic, vocational, intelligent, and economic welfare of the worker, which only training will produce.

This meeting this morning bears abundant evidence that employers are rapidly establishing their own schemes of training. Where these are established on a fair basis and have in view the ultimate good of the worker as well as the interests of the com-

pany, they deserve hearty encouragement. Should a solution of the problem of industrial and trade education be attempted on a large scale by employers through their own schools, I am strongly of the opinion that such schools should in some way be tied up with the public school system of this country so that the scheme of training operated by the shop may receive the approval of representatives of the public.

5. The principle needs to be asserted, in my opinion, that the State is concerned with the regulation of the education of the youth up to a reasonable maximum in years even after he has left the regular school. That, after all, is the deeper meaning of the tidal wave of compulsory part-time legislation which swept over this country last year and which has committed 21 States to a program for the further training of the youth after he enters upon his career as a wage worker.

6. What is the place of the private school in this program? It lacks the funds to consummate any service on a large scale. It is free to experiment, if it will devote itself to this service and clearly recognize its opportunity. Everywhere private industrial and trade schools should be concerned with new devices, new ventures, new experiments, new ways of training men, new ways of cooperating with workers and with employers. Only in this way will the private industrial and trade school continue to be of service as pioneer institutions.

On the other hand, if the private school settles down with smug complacency to the training along traditional lines of a small group of men only, excellent service as this is, it will lose the leadership which it has maintained up to this time in the field of vocational education.

AUTOMOBILE AND GAS ENGINE REPAIR ON A COMMERCIAL BASIS

EDWIN R. SNYDER
State Director Vocational Education, California

Trades and industries may be classified in two groups: those that deal directly with the consumer and those that do not.

It is comparatively simple to set up vocational training courses preparing for occupations in shop trades and industries that deal directly with the consumer, because it is comparatively simple to arrange for the consumption of the work of the department. Examples of occupations in which the product goes directly to the consumer are: dressmaking, millinery, printing. automobile repair, etc.

Of this list, automobile repair is the only occupation which deals exclusively with the consumer. Automobile repair shops cannot be satisfactorily centralized and the work specialized excepting in large cities. So far, specialization of work has been confined largely to a division based on standard makes of cars.

At present and perhaps for all time to come, the automobile repair man must be a sort of jack-of-all-trades. He must know the theory of levers and inclined planes, and the practical applications of the same through many mechanical devices. He must know the theory of gas engines, electrical motors, and generators, and their construction and operation. He must know the theory of the transmission and reduction of power and the construction and operation of the mechanical appliances used for this purpose. He must know the theory of storage batteries and ignition systems and their construction, operation, and repair. He must understand carburetors, their theory and operation, and also carburetion. In short, he must be familiar with all of the parts of the automobile and their functions.

He must be able to do simple forge and acetylene heating and welding; and sheet metal, electrical, and machine shop work.

The repair work done in the average service garage is not suitable for instruction purposes in a school garage because the

same operations are repeated over and over. Thus the repairer may never be permitted to gain experience in dissembling, repairing, and assembling all parts of the car. The work most suitable for a school garage is a general overhauling of cars wrecked or worn to such a degree as to make it desirable to have them completely torn down.

Besides being most desirable, this class of work is easiest to get because the owner of the car is compelled to give it up for a considerable length of time, even if he takes it to a commercial garage.

In the nature of things, the school garage cannot compete with the commercial garage on a time basis. The school garage can, however, turn out work which will compare favorably with the work of the best commercial garage. A sufficient number of owners can be found who are willing to sacrifice time in order to save expense.

In California, the usual custom is to charge the owner only for material that has to be purchased in order to put the car in proper repair. In some instances, an additional percentage charge based upon estimated cost of commercial repair is made. A sinking fund is created with the income from these charges, to be used as a sort of insurance fund to defray any unusual expense due to fire, or breakage or theft of parts.

In California, we do not consider a course in automobile repair satisfactory that does not keep on the floor for each class of pupils at least six automobiles and a full assortment of demonstration engines, motors, generators, carburetors, storage batteries, and ignition systems. The most satisfactory full-time day courses in trades and industries maintained in the State of California are these automobile repair courses.

EDUCATION AND PRODUCTION IN ELECTRICAL CONSTRUCTION

F. H. WING
Director Vocational Education, Buffalo, N. Y.

What I have to say about commercial production as an educational means in preparation for the tradesman's field in electrical work is based largely upon our nine years' experience in conducting trade preparatory courses for electricians at the Seneca Vocational School of Buffalo.

It is also correct to say that our theory and practice in this matter have been greatly influenced by all our experience with unit trade courses, which, cumulatively, represents the span of ten years, the scope of eight trades, and the student body of 5,000 boys. Likewise, the experience of other places has very materially affected our philosophy.

Therefore, after all this experience in the study and application of the various theories advanced concerning commercial production in all-day trade schools, I assume you are interested to know what we consider **sound** theory so far as electrical construction is concerned.

Then at the outset let me say that all of the nine men engaged in the electrical construction teaching and supervision in Buffalo agree upon the following fundamental principle:

The best educational results can be obtained only when every bit of work that is done for the purpose of learning to do that bit of work, is done under such conditions of reality that the results of the labor, if successful, will be of economic value and put to actual use.

This statement implies a broad interpretation of commercial production but absolutely eliminates "aiming at the waste can." Whatever goes into the "waste can" under this principle, gets there through failure to meet the standard of utility and not through deliberate intention. No artificial product can be used successfully to develop proper standards of workmanship and a proper balance between speed and quality.

Since the distinctive purpose of the trade school is to train people for economic production, this universally accepted axiom is applicable—that the ***only medium in which training can be***

successfully acquired is that medium in which such training is actually to be utilized. To leave the element of utility out of production would so materially change the medium that the training provided in it would be spurious or unsound with reference to real conditions.

Training thus acquired develops false confidence on the part of the student and the school and breeds faithlessness and disgust on the part of industry. The situation here suggested is at the crux of the relationship of school and industry. The champion swimmer of Great Salt Lake might drown or dash his brains out in his first high dive in Lake Erie, or, if he were to enter a fresh water tournament in competition with fresh water swimmers, he would be risking his reputation as an aquatic performer. His ability at expert performance has been developed in salt water—a medium of different density. Before he can compete successfully with fresh water swimmers, he must learn to perform in fresh water—the medium of the contest. The same swimmer would, of course, have the advantage of his fresh water trained competitors in a contest in Great Salt Lake. Furthermore, his salt water ability might be of great assistance in developing fresh water ability. This would be particularly true if he understood those differences in the two mediums that govern swimming performance and if he had a true perspective of his own ability.

Skills and knowledge acquired under non-productive conditions may or may not assist in the subsequent development of commercial ability but it seems clear, that, except by coincidence, they do not function directly as training for economic production.

In this connection, we should remember that the learning process requires us to proceed with one thing at a time, even in developing the "power to do." Most processes are very complex in the number and variety of skills required for their performance. The boy learning to ride a bicycle learns first to maintain his equilibrium by means of the steering apparatus under conditions that do not require him to pedal. When he has mastered so much, he undertakes to pedal and maintain his balance at the same time. With these two skills mastered, he proceeds to learn how to throw his weight so that in turning the front wheel to re-establish his equilibrium, he, at the same time, guides the wheel where he wishes it to go. Then come mounting and dismounting, hard pedaling when the weight is thrown from side to

side, fast riding, very slow going, etc. The order is probably never quite the same with any two individuals. To require Johnnie to ride his wheel to school the first day he had it would be no more unreasonable than are some of our attempts at commercial production with beginners.

All industrial processes are far more complex than some teachers and most directors appreciate. Vast improvement in development of skills would result if we could actually practice the principle of presenting "one major difficulty at a time." Right here is where error creeps in. The necessary simplification of trade processes for training purposes frequently results in the elimination of elements that are vital to the integrity of the simplified form as a training medium for that process. This simplification should be a process of dilution and the greatest care should be exercised to see that all the essential elements remain.

For example, in training an aviator, at first, by choice of time, we eliminate cold, darkness, wind, rain, snow, hail, obstructions, etc., but provide him with an aeroplane and atmosphere in its simplest form, so far as flying is concerned. Then, as the basic elements are mastered, the other complicating elements are added one by one in the proper order, until, finally, the student emerges a finished flier. This process of training a flier is comparatively simple and is a matter of weeks while the training of a real mechanic is comparatively complex and is a matter of years.

The schools do not attempt the complete process of training but they must assume responsibility for preparing youth for successful launching in their trades. One of the most important parts of this function is the greasing of the ways by equipping the learners with ability that has immediate marketable value in the industrial world. This ability guarantees the learner employment in the kind of work for which he has prepared and in which he wishes to continue his training. It is his stock in trade by means of which he is to increase his wealth of knowledge and earning power. It is worth more in securing recognition among workers and employers than all his diplomas and recommendations put together. In fact, justly or unjustly, his immediate performance upon beginning employment is the measure by which his credentials and the institution giving them are rated. The idealist who scoffs at such practical considerations

should reserve his scorn, since human nature here permits us to make virtue of necessity.

For commercial production in the unit trade school, properly chosen, wisely arranged, and sanely administered, not only motivates itself—teaching facts, developing skills, and inculcating habits which are of vital importance to vocational success and which cannot otherwise be so readily mastered—but, in addition, commercial production becomes the central magnetic force of the school, putting new life and significance into every activity of the shop, laboratory, class room and play ground and providing the basis in reality for the teaching of the great ethical and moral lessons so dear to the theoretical idealist and so attainable to the practical idealist.

How difficult it is under practice conditions to instill the fact that there is danger in overloading an electric-light current and how easy it is to impress this fact under real conditions where overloading may cause a serious fire.

How difficult it is under practice conditions to require a good commercial standard of skill in splicing wire and yet how easy to develop this skill through the constant purposeful repetition of the splicing process required by real conditions.

How difficult it is under practice conditions to inculcate reliability and yet how natural it is for this quality to be developed under real conditions.

Commercial production is as essential to successful trade instruction as fuel to fire and satisfactory results are obtainable with it very much as satisfactory results are secured with fuel—through appropriate selection, proper application, and right quantity, with conditions that are always under complete control.

On the other hand, however, essential economic production is as a training medium to develop marketable skills and abilities and however inherently potent it is to accomplish these ends, we must remember that there is another important part to the function of launching the young worker in his trade. He must be equipped with the power and desire to reason with reference to his task,—the ability to think his way through the innumerable problems of his vocation. He must have an active mind as well as a skillful hand.

His growth in and with his trade and his contributions to it are all largely dependent upon his mental training, for, though he may have ever so auspicious a start through having imme-

diately marketable skills, if he lacks intellectual vitality, his opportunity is certain to wither away to commonplace humdrum existence.

We must do more than train him to do certain tricks, like a dog; we must educate him so he can train himself to do new tricks and to see the need for them when it arises or even to anticipate it. Much of this training may be got out of school commercial production, especially if great care is taken to see that the reasons for established practice are fully comprehended.

The understanding of the relationship of theory to practice is one important thing that we are sure will carry over into new situations. It binds the past with the present and the present with the future. It is the bridge each one must erect in order to keep pace with things. How often we see a workman using an antiquated process because he has never completed this bridge.

The rudiments of this mental process are somewhat laboriously mastered and need all the concreteness of commercial production in which to secure practice. To serve this purpose, however, the commercial production must be of the simplest form. As facility is gained, it is possible to transfer the process to more abstract expressions of practice; such as, samples, models, disassemblies, etc. Here we get entirely away from real commercial production but carry out a lot of construction for the sole purpose of the study of theory. We deal with a sort of **construction short hand** for the sake of mastering the essence of commercial practice that goes far beyond any possible limits of a two-year school course.

There is still another sort of shopwork of very elementary character which is done in order to teach the theory of the simplest processes of electrical construction and which, perhaps, bears the same relationship to the commercial production carried on by the school that the theory instruction above referred to bears to commercial work in vocational life. This shop work is really only the laboratory process of teaching electrical theory. Our opinion at present is that in electrical construction this work should properly consume about one half the total time available for shop work. The remainder of the shop time should be devoted to commercial production.

Up to the present time, however, there have been so many practical difficulties in the way that we have never yet devoted half of the shop time to commercial production. Prominent among these difficulties are the following:

Not enough jobs available of the right kind, size, and location; suspicions of labor men; insufficient number of teachers; interference with other school work of jobs away from school.

We are, however, gradually approaching our ideal. Next year we expect to have more access to city work and a teacher assigned to outside commercial work. In spite of our handicaps, during the calendar year we did over three thousand dollars' worth of commercial work with about one hundred boys. The jobs we did included wiring electric signs, installation of lights, motors, telephones, and switchboards; also trouble-finding and repairing in great variety. This work was done for the Board of Education in all sections of the city.

Of the students who are admitted to this course, about one-third complete the two years, graduate, and go into electrical work. Another one-sixth who nearly complete the course also enter electrical work. One-third are eliminated during the first year as unfitted for success as electricians. Most of these are eliminated during the first term. The remaining one-sixth complete a year or more but fail to enter upon electrical work.

The one-half who become electricians as graduates or near-graduates are far more successful than are the usual recruits to the electrical trade. Many have risen rapidly to positions of distinction and unusually good pay.

Our standing in the community is constantly improving. Each year brings in a better type of student and more of them. Employers want our graduates and are willing to pay them good wages. The labor union is becoming less suspicious, and, with the establishment of the intermediate school plan throughout the city, we expect to be relieved of the one-third who should never come to us at all.

I believe that the experience of the Seneca Vocational School with instruction in Electrical Construction has demonstrated that there is an important place for all day trade preparatory courses in this trade in Buffalo, at least. Furthermore, it has proved the place and importance of commercial production as a means to this end.

PROJECTS OF INDUSTRIAL EDUCATION THROUGH PRODUCTIVE WORK IN PRINTING

JOHN F. ARUNDEL
Director Vocational Education, Cincinnati, Ohio

Vocational education for the printing industry is just being started in Cincinnati so I am using two projects of the Industrial Arts Department as the basis for this discussion. Printing is offered by our high schools as an elective in the Manual Training Course. Eight periods, or six clock hours of instruction each week are given to the subject.

During the summer vacation of 1918, a teacher and five boys worked on a project of productive work. Various schools and departments reported their needed blanks, forms, cards, etc., and orders for about $1,000 worth of printing were collected. This work was made the basis of nine weeks of intensive printing instruction. Classes were held eight hours each day for five days each week. Several of the boys did not work full time as they went away on their vacations. The cost of the labor, paper, and electrotypes was $1,010.49. The market value of the product was $1,161, which showed an apparent gain of $150.51.

During the summer vacation of 1919, the same teacher and five boys handled a much larger job. Three of these boys worked on the project of the preceding year. Classes were held for the same length of time as before. The cost of labor and material was $1,097.53. The market value of the product was $1,739.58, which showed an apparent gain of $642.05. This greater showing in 1919 was due to a saving on the press work as electrotypes were used on the majority of the jobs and to the greater experience of the boys. It is also due to the fact that certain schools and departments had electrotypes made at their own expense since practically all of the forms printed were standard and will be ordered again.

No overhead charges were made on these jobs. From a business standpoint, you will find a loss instead of the apparent gain should the proportionate cost and depreciation of equipment, the cost of light, power, janitor service, rental charges, etc., be added. This loss is the actual cost of this project of trade education.

The aim of the public schools was to take boys who had received pre-vocational training in printing and give them such a trade experience as would enable them to decide if they were fitted for that craft. The work produced must be of such a standard as to compare favorably, insofar as quality is concerned, with that which might come from the commercial shop. Our product had for its motive the education of the boy. In no case was the educational value made subservient to production.

Programs, attendance cards, report cards, and various school forms made up the bulk of the orders. The size of the pieces varied from 10 x 14 inch posters to 2 x 3½ inch slips. The press work was done on one 8 x 12 inch Gordon, one 10 x 15 inch Gordon, and one 10 x 15 inch Universal Colts-Armory.

The laws of Ohio allow a boy between the ages of fifteen and sixteen to engage in a gainful occupation but a work certificate must be obtained. This detail was attended to in the case of a boy under sixteen years of age and the Board of Education was designated as the employer.

All employees paid by the Board of Education from the contingent fund are subject to the rules of the City Civil Service Commission. A special blank has been devised to cover this special student employment. Application for the approval of this plan was made to the Commission and the boys were officially designated as student-printers. The names of the boys appear in the minutes of the Board of Education as regularly appointed employees.

For the 1918 project, five boys who had had one and two years' experience in the school print shop, were secured as student workers. The teacher was paid at the same rate he was entitled to during the regular school year—$30 per week. The wages paid the boys ranged from $6 to $9 per week and were determined according to ability as judged by the teacher.

For the 1919 project, five boys who had had two and three years' experience were secured and wages ranging from $7.20 to $10 per week were paid. Three of these boys had the valuable experience of having worked on the project the preceding year. The teacher was paid $35 per week.

The teacher in charge sent in the time of each boy and the wages due on a regular pay sheet. A voucher for the amount was prepared by the Director and sent with other employees'

vouchers to the Civil Service Commission for approval. The Board of Education then ordered a check for the wages to be issued to the Director. Separate checks were given to the boys and they signed a payroll which was filed with the Treasurer of the Board.

Orders for printing work in our schools are made out in triplicate. One copy remains in the office of the Director, the other two are sent with the copy of the job to the teacher in charge. When the job is completed, the teacher fills in the cost data on these orders and returns one to the Director's office. This cost is then charged against the account of the school or department for which the work is done. The teacher makes out a job ticket when the order is received. This is in the form of an envelope and encloses copy, proofs, etc., belonging to the job. This envelope is filled in with the cost data and is a permanent record of the job in the school shop.

The attitude of the Attorney-General of the State of Ohio and the State Superintendent of Public Instruction is favorable to productive work as an educational project. The statement from a letter is as follows:

> ". . . So long as the work done by pupils . . . is a part of the curriculum of your school, it matters not if the products of their training have a commercial value. The Board of Education, under its general powers to manage and control the schools, has a right to prescribe this course of training and this course may include work upon such articles . . . as will have a commercial value when completed."

The Department of Vocational Education has made three proposals of training to the employers and employees of the printing industry: a two-year cooperative trade school, part-time classes for apprentices, and evening classes for journeymen. These proposals have been accepted by the Franklin Typothetae and Typographical Union No. 3 of our city.

I have with me a recent issue of "The Chronicle," the official organ of the Central Labor Council of our city, which carries an announcement of the cooperative trade school.

I can best show you the attitude of the employing and labor interests by quoting one of the provisions agreed to by both sides: "Actual printing done by these students while in the class

will be school material and it is understood that no commercial enterprises will be entered into."

I think it is thoroughly understood that trade education is best received through the medium of productive work and that employers and employees will support this move as long as the schools do not enter the competitive field.

Woodward High School

JOB TICKET

NOTICE.—Keep all copy, proofs, manuscript and slips of paper belonging to this job within this envelope, and return envelope to the instructor before you leave the room at the end of the class period.

Quantity 1 M Number 168 - W

For Woodward High School

By whom ordered A. O. Jones

Name of Job Withdrawal Cards

Kind of Composition Tabular - 2 sides

Reprint Yes Original

No. of Impressions 2 M

Received July 14-19 When Wanted At once Delivered July 24-19

Stock Furnished by Board of Education

Size of Sheet 4 x 6

Cost of Stock $2.66

Kind of Stock Bristol Amount of Stock 40 sheets

Scrap Special Regular Yes

Color of Ink Black

Wax Rule Elect.—Cost Elect.—Cost Zinc Etching—Cost

Composition Time

Proof Submitted Yes To Whom A. O. Jones

Commercial Value, Completed $14.90

General Remarks

IF YOU DO NOT UNDERSTAND, ASK

Stock $1.60	Padding	Zinc Etching	
Composition $10.00	Wax Rule Elect.	Stitching	
Pressework $3.00	Electros	Handling 25¢	

CINCINNATI PUBLIC SCHOOLS — TRIPLICATE

PRINTING ORDER

SUPPLIES

TO BE PRINTED BY INDUSTRIAL ARTS DEPARTMENT

School Order No. _____

Office Order No. _____

_____ 19____ *For* _____ *School*

Copies _____ Name of job _____

Size of paper _____ Kind of paper _____ Cover _____

Ink _____ Padded (number) _____ Stitched _____

Send proof to _____ When wanted _____ Charge to _____

Remarks _____

Estimated cost of material, $_____ _____ Principal

Order received _____ 19____	Working time	_____ hours	
Order completed _____ 19____	Final cost of material	$	
_____ Principal	Commercial value _____	$	

The above order is approved and assigned to

_____ School

_____ 19____

_____ Director

The above order and its execution by the Industrial Arts Department is approved.

_____ 19____

_____ Superintendent

Director of Industrial Arts will retain this copy.

VOCATIONAL EDUCATION IN THE CONTINUATION SCHOOLS

Report of Special Committee presented by the Chairman

R. L. COOLEY
Director Vocational Education, Milwaukee, Wis.

Recent reports from the Federal Board of Vocational Education convey the information that eighteen (18) States have passed laws providing for the establishment of compulsory part-time day continuation schools. Of these, one extends the compulsory attendance age to seventeen years, and ten to eighteen years of age. Only three of the States have fixed the required yearly minimum number of hours of compulsory attendance so low as the minimum fixed by the Federal Vocational Education Act.

The extension of the compulsory part-time provisions of the laws in so many States to include the older employees of sixteen to eighteen years was thought by Dr. David Snedden, President of the National Society for Vocational Education, to suggest the importance of giving special consideration to the extent to which the continuation schools established under the laws in the various states can do work of a character which may properly be called "vocational." It was thought that this consideration might best be brought about by the work of a special committee through a report to be presented by that committee at this session.

Dr. Snedden appointed the committee, but people are busy, and the country is large, and travel is expensive. It is difficult to get people to work together at great distances apart. After much travel and conference with Mr. Evans of Boston, Mr. Callahan, State Director of Vocational Education, Madison, Wisconsin, both members of the committee and many other directors of vocational and of continuation schools throughout the country, it was decided that the Chairman of the committee should attempt to make a helpful and suggestive presentation of the whole problem with which those called upon to promote, inaugurate, and conduct the continuation schools in the various communities are confronted. The "vocational" work will be discussed as one phase, and we hope, thus seen in its proper

setting and logical relation. The presentation will attempt to show the place of the continuation school in the whole scheme of education, and to give some suggestions, born of experience, as to what the special problems are and how they may, at least in part, be met.

Let us first consider where the continuation school field lies with respect to the other educational activities of a state or community. To this end let us assume that the whole population of a state or community is represented by a rectangle as L M N O - Fig. 1.

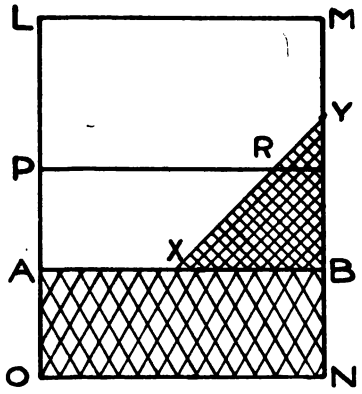


FIG. 1

□LMNO = Population of community.
AB = Age at which people may leave school.
AXY = Age at which people do leave school.
Shaded area = Section of population in full-time school attendance.
Unshaded area = Section of population for which part-time schools should be provided.

If we draw the line A B as representing the earliest legal age at which young people are permitted to enter industry, the shaded portion below the line A-B would represent, with the exception of those under the legal age for entering school, a section of the population in full time attendance at day school. If in addition we should draw the line X Y as representing the

ages at which those young people leave school who do not leave at the earliest moment the law permits, we should have represented below the broken line A X Y the whole section of the population in attendance at full-time school. We should have there represented the whole section of the population which, economically, is being supported by some one else, and, on the whole, may be classed as dependents, whether they be in attendance at the kindergarten or the university, whether they be in public or private schools. It is an accepted policy that below the broken line A X Y schools shall be provided adequately, comprehensively, and at public expense. On the other hand, education in the field represented by the area above the broken line A X Y has never been felt to be a public responsibility except in a doubting, hesitating way and to an absurdly inadequate degree. The conviction that systematic, comprehensive, adequate educational tilling of this upper field at public expense, would pay economically, civically, and socially, and that a community cannot bankrupt itself doing things that pay in dollars and cents and in improved civic and social conditions, any more than a corporation or an individual can become bankrupt by doing things that pay in these respects, seems never to have been arrived at. We have, therefore, all seen this last mentioned field abandoned to the exploitation of the merely commercial institution, ranging all the way from reasonably good institutions to purely mercenary ones, sporadic efforts of purely philanthropic institutions and hopeless, inadequate extensions of public evening schools.

Just as we have failed below the line A X Y to realize that education pays so well, even in dollars and cents, that as good business men we cannot afford to invest less money in this field than it can profitably absorb, so above the line A X Y we have not all seen clearly the tremendous value of properly organized, administered and supported educational effort. We forget, if we ever knew it, that when we mention the values of things, we are merely stating a relation between things and people. Man is the only purchasing animal. Man, in the last analysis, is the only being that definitely confers values upon things. Uneducated, undeveloped people never increase wealth as do educated, developed people. The field above the line A X Y is our real great American Desert. It is rich in native fertility. It will yield when properly irrigated by education. Up to date

we have scarcely favored it with an educational dew fall. Private parties have discovered a few water holes and fenced them in, and missionaries with a faith worthy of our emulation, "that whosoever shall give one of these to drink, shall in no wise lose his reward," are as ever found pioneering where needed work is to be done.

We have set forth the field above the line A X Y broadly, and at some length, because the continuation school, as it is conceived of in most states, is thus seen to be part of the work of the upper field. Let the compulsory continuation school be represented by that portion of the unshaded area below the dotted line P R. Let us take things as they are for the purpose of our discussion, but recognize that the line A B may be moved up by legislation, carrying the line P R ahead of it. We shall then have as a constant compulsory continuation school problem educational contact with the youngest stratum of employed people, and all the difficulties and responsibilities that go with their early development in those respective lines.

Above the line P R there is much in common with the continuation school problem. There is much that suggests that the education of that section of the population represented by the whole upper, unshaded portion of the rectangle should be organized and administered together, with such special adaptation of means to ends as will make success possible and even probable. What some of the differences are which suggest adaptation of administrative machinery, as well as matter and method, will appear in the discussion of the compulsory part-time work below the line P R.

Let us again, in order to get the attempted presentation clearly before us, assume in Fig. 2, that the rectangle A B C D represents the employed population of a community, between the ages of 14 and 16, or 17 years. That the line A B represents the conditions that must be met before young people are permitted to leave school and enter employment. That rectangles 6, 7, 8, and HS represent respective school grades from which young people enter employment. That the small dots represent 2,700 jobs of little or no opportunity except as any job is an opportunity for the exceptional young person. Let us assume that the 300 heavy dots represent jobs which are of such a character as will constitute unusual opportunity for any boy or girl who is not subnormal. Let us assume that the state,

through its agencies, has looked to the moral hazard, physical hazard, and even financial hazard, so that in these respects little is left to be desired. It still remains that the 2,700 jobs are deadening and de-educative in their effect, and the 300 are educative and stimulating.

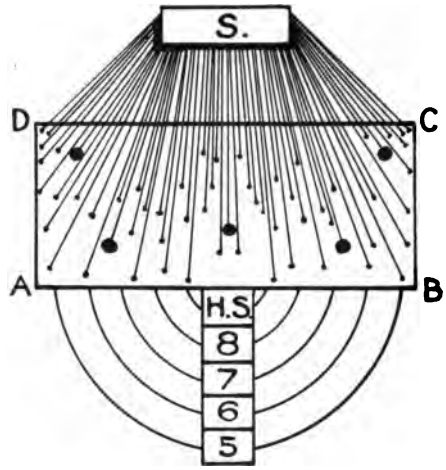


FIG. 2

□ ABCD = Field of employment.
AB = Conditions that must be met to enter field of employment.
· = Small dots represent "dead end" jobs. (2700 assumed)
● = Large dots represent better jobs. (300 assumed)
S = Required school attendance.
Rectangles below represent grades from which young people enter trade, industry and commerce.

It still remains that no exercise of wisdom of choice, and no amount of analysis, and no amount of helping one boy to beat another to it, can guide the 3,000 boys and girls into the 300 good jobs.

I do not wish to be thought to be arguing against organized placement work, nor the disseminating of vocational information. Placement work ought to be better supported than is usually the case, but its limitations must be recognized to the end that communities may not think they have done more than they have

done, and be led not to forge ahead with the other very essential thing, viz., that of making adequate, comprehensive and public provision for part-time compulsory education, which part-time work must be shot through with the idea of guidance while working.

The before mentioned 2,700 dead end jobs are going to be filled with 2,700 boys and girls, some of whom cannot be made "dead end" boys and girls, and who will succeed in spite of all unfavorable circumstances. For the vast majority such jobs will, by themselves, de-educate, devitalize, and degenerate, the young people, who, in their very formative years, by necessity or unwise choice find themselves through several years occupying them. They are properly named "dead end" jobs.

Figure as we may, young people, in their first contact with industry, are in a large measure bound to occupy such jobs, and industry is constantly multiplying them. As to the initial placement of these young people, I am convinced that the young person's ultimate employment is not so much determined by the nature of the initial job he undertakes, as by the way such young person reacts in his or her initial job. I believe, and, in fact, I know from experience with thousands, that when the job is hooked up with the school as indicated in the preceding chart where S is intended to represent the school with lines extending from S to every job of the 3,000, the number of "dead end" situations are vastly diminished, and the "dead end" jobs cease to be the very great menace they otherwise constitute.

You will notice in Fig. 2 the good jobs—those that have an element of apprenticeship in them in the sense that they involve the young person, often unknown to himself, in a program, are connected with the school just as are the less promising ores. You will notice likewise no young people entering the field within the age of compulsory attendance are excused because of advanced schooling. The better the job, the greater the opportunity of the school. The better the boy or girl, the more advanced he or she is—the greater the opportunity for the school to be of service. As well a smelter throw out the high grade ore as a school fail to make the most of the greater opportunities which better jobs and better prepared young people present to it.

Schools which can serve admirably the needs met with among the employed young people of a community can be

organized. Any community, that in the light of present day conditions fails to organize or indifferently supports such schools, is complacently heartless, scandalously wasteful, and criminally negligent. Indifferent support, in spite of State compulsion, is one of the gravest dangers confronting the development of the part-time school. The full-time schools need more money, and school budgets seem large to local authorities. Many communities today have no more faith in education than the farmers of forty years ago had in fertilizer. They do not quite believe the money comes back. Nevertheless, while no community can afford not to support the part-time work, the employed young people have a special claim to recognition. The employed people under 18 years of age in any community big enough and live enough to keep its young people at home, earn and carry into the homes of those constituting the economically lowest stratum, enough money to pay all teachers' wages of all the children in all the full-time schools, public, private, and parochial, elementary and high—twice over.

The young people under 17 years of age in Milwaukee are employed on permits to the number of about 9,000. The report on their earnings made the week ending February 17, 1920, shows a weekly earning of $85,495.28, or an annual earning of $4,445,754.56 for 8,078 of these young people. We failed to get reports on very nearly 1,000 of them, so our figures are under, not over, the actual amount. This amount of money goes, in the main, to swell the family budgets of those families which most need the increase. To maintain these none too large family budgets at their present level and put these young people on full-time school would require an investment at 5 per cent of about $89,000,000. I have not one word to say against an enlarged full-time school program that will take these young people out of employment provided the situation that would be created by such a program, both educational and economic, is first adequately met. We need not be timid or hesitate to go on with our part-time school problem because of any feeling that a sudden change will sweep away the necessity for our work.

The educational activities in the country are today in the straightened circumstances they find themselves, because educational leadership the past two decades or more has broken down. It has failed to sell education to the public. It has been

timid and lacked faith in its cause. Education is the fertilizer of business. Business grows as education becomes effective and shrinks as education declines. To any student of industrial history, the economic value of education is too apparent to be disputed. If there is any fact that such a study of the development of wealth covering long periods will show clearly, it is that business volume rises and falls with the development (education) of the people with a certainty and sensitiveness comparable only to that with which a thermometer responds to increasing or diminishing temperatures.

Does the business man want to talk dollars and cents? Talk it with him. Hoist him on his own petard. Don't try to hoist the business man on the preacher's petard. Hoist the preacher on that.

In time, and a relatively short time, your part-time pupils in the whole upper field shown in Fig. 1, will be among the most active promotors of the whole educational program—both part-time and full-time and it will be increasingly easier to get money to support educational activities.

Don't waste time arguing with people who accuse you of not believing in cultural education. Let them argue it out with the people whose desires are such that they want plumbing instead of poetry in order that they may learn enough to earn enough to live on a plane which will permit the cultural education which they have absorbed in their previous eight years or more of full-time school to survive.

I know very few people who do not believe in cultural education. I know some who believe that there should also be a place where employed people, on such part-time as the law permits or such leisure as they can command, may go and get what they are convinced they need, as major part of the program. When I say major part of the program I mean thereby to recognize the fact that this "practical"—major program must be intelligently supplemented. I know of no people who would argue that varied and convenient opportunities for democratic choice of training, whereby one gains the power to render a service that has fair exchange value in a world where everybody is expected to earn his own living, is a bad thing, except those who, by some freak of logic, argue that such democratic choice is a Prussianizing of our school system, and that what we need is compulsory Kultur. The people who so argue

at this time are merely trying to hitch their wagon on to a prejudice that has grown out of a great world's tragedy.

Indifferent support, I have said, constitutes one of the gravest menaces to part-time education. I have spoken of indifferent financial support. Indifferent professional support, I fear is an even graver danger. "What can you do in a half-day a week?" is a question that has been rather contemptuously asked by school men of those who are in the work many times. I have wondered if this contempt for a half-day a week may not account in part, for the failure in so many cases to accomplish more in ten half-days per week through eight years. Maybe one mission of the continuation school is to establish the value of the half-day and put "time," the school "currency," on a proper exchange basis.

Part-time school means short time contact with the pupils. Short time contact means matter and method must be carefully considered in order that the short time may count. It must be recognized that the function of the school is to keep the young people growing, and that they grow all of the week.

In our efforts to make the short time contact with the pupils count it must be recognized that there are two kinds of facts which may be taught. There are the facts which are principles and which once having been understood and accepted, the boys and girls are never again the same civically, socially, morally, hygienically, mathematically, or grammatically. They are inoculations and they work after the inoculator is gone. The slogan of our part-time continuation schools must be to teach so that the boy and girl will be different in some respects this afternoon, because he or she has been in school this morning, or different tonight because present this afternoon.

To imbue a whole class with the idea that language—speech—is the priceless possession of human beings, and the thing that most distinguishes man from the monkey; that it is worth refining and polishing; that we wear it as a garment, and are more judged by our speech than any other one factor; to convince them that it is a good thing to care what others think of them, and to wish to appear well to others in dress, conduct, manners, and speech, and then to get them busy working on the improving of their own speech,—will perform wonders, get results, and, except for an occasional tapping of the hoop, release the teacher for other duties. We see too much of

one teacher working on the improving of the language status of twenty pupils, and too little of twenty pupils working at improving their own language.

In the continuation schools, especially with the younger people and where but four hours per week are given, the pupils, in my judgment, should have but one teacher. This teacher should instruct in a major subject, such as shop work or sewing, through the greater part of the period and carry on the instruction which must accompany the major subject in much the manner suggested in the English work above. The hoop can be tapped each week, and kept rolling to the end that the academic attainment with which the young people come to the continuation school can be clinched and even materially increased. Motives must be supplied, or rather discovered, or perhaps uncovered would be a better term—not in the teacher but in the pupil. Nothing will move the individual but a motive, and when a proper motive begins to move the individual, the teacher's worries are about over.

The program of the part-time school cannot be satisfactorily set up to look like a conventional school program with its neatly arranged compartments side by side, or like capsules end to end, each containing forty minutes of this, fifteen minutes of that, ten minutes of something else, nicely insulated one from the other. It must rather be conceived of in some respects as a rope with its several strands leading through the period, all present at all times, and each strand ready for a tug when occasion requires or circumstances present favorable opportunity.

Even with the longer hours in effect, as in the case of eight hours a week, something of the above mentioned policy of carrying on associated subjects simultaneously with the major subject, must be continued. In most of our classes spelling cannot be relegated to a regular spelling period, penmanship to a regular penmanship period or a study of vocabulary to a special period, etc., but correct spelling of words used, the best penmanship that the pupil can execute, and reasonably correct pronunciation and use of newly acquired vocabulary can be urged, and the desire to improve in these respects promoted in an effective way by the teacher, whenever in the teaching of this major subject these instrumentalities are used.

In any continuation school where either the seventeen or eighteen year old people are required to attend, without making

an exhaustive analysis the following groups of both men and women will be found:

1. Indentured apprentices. (Written contract with employer.)
2. Virtual apprentices. (Verbal agreement with employer)
3. Union apprentices.
4. Independent learners.
5. Helpers.
6. Workers at jobs they do not expect to continue, but having a very definite plan for their future.
7. Unskilled.

For the first four the obligation of the school is very clear, even if difficult of attainment in some cases. The school must supplement the employment of those attending. Highly skilled trade teachers must be provided. It must be recognized that you cannot plant seed corn from nubbins and raise good corn, nor plant oats and raise barley. Teachers must be made out of skilled tradesmen. Occasionally they can be found ready made or especially promising. No administrative difficulty should be placed in the way of obtaining such promising material, and they should be judged solely and only upon their ability to make good in reasonable time. The application of the usual certification methods, or the surrounding of the one charged with the selection of these teachers with the usual restrictions will fall like a blight and a curse upon the successful development of the vocational work in these schools. It is too big a price to pay to convention, and if the full-time school fabric will not stand the wrench, then such degree of separation should be sought as will save the part-time work from being ham strung by its association.

In its ultimate development in our cities, the part-time vocational school classes must become as varied in subject matter taught and supplementary equipment, as the commerce, trades, and industries of the communities in which the schools are conducted. No matter what the trade school or full-time school development may become, there will always be a hundred people in part-time supplementary schools, learning as they work, to one in full-time trade or other industrial school. These schools will always be more or less unconventional in that their equipment and subject matter will be changeable and unique. Quick adaptations will have to be made and unusual conditions promptly

met, or enthusiasm will be lost, and sustained interest impossible.

A large proportion of the girls will be found desiring and needing straight home making courses involving sewing, cooking, art as applied to attire and the home, knowledge of values, importance of thrift in its best sense, health civics, guidance in their reading, and a strong effort to bring about that friendly attitude which will lead young people to look to the school for counsel and advice. This latter spirit must pervade the work with boys and girls.

The problem of a more varied opportunity for women in industry must be analyzed and met fairly. Many efforts that will likely fail will be made to provide the varied opportunities and such failures must serve to furnish us with the necessary experience and knowledge to work out the things that will not fail. All opportunities for more varied and particularized vocational training for women must live alongside of and in voluntary competition with accessible and freely offered home making courses. Women must not, by lack of opportunity or of choice, be forced into varied vocational courses, which courses may thereby be promoted on an artificial basis and represent a fictitious success. The reverse of this conclusion is also in part true. The fact that it seems the majority of young women want the home making courses must not be assumed to the extent of forcing the women who want the other work into home making classes and then counting their presence there as evidence that it is the thing they want and should have. It is plain, however, I think, that we must start with the home making courses and refine and adjust our work from there, particularly in our compulsory classes.

The unskilled boy workers must have their academic attainment conserved and must be worked through observation or reservoir classes as distributors into more and more definite channels leading toward more and more seriously and thoughtfully determined programs which it shall be the school's function to help them to realize. The school must develop as conditions point the way. School authorities must follow courageously where the facts lead. The development will be different in different communities as commerce and industry of the community differ, and must be made as broad as the interests of the young people determine. The great danger is that those entrusted with the part-time work will see it too small. There

will be a disposition to couple this work up with the manual training of the full-time schools, thus making a job for the director that will seem initially to justify his salary and which will relieve him of the necessity of developing the new field to warrant his continuance. Necessity is sometimes the mother of vision. Vision locating the directions effort should take must be followed up by such practical considerations as housing equipment, courses of study, employment of instructors, etc. No blue print of this development can be made. Instruction must be largely individual and must take the young people where it finds them. There must be no disposition to quarrel with them about their present condition, but they must be taken as they are and go on from there. The condition of the individual must be met here as it is met in the doctor's office.

Courses of study must be largely determined and held to form by near and clear objectives which will simplify the selection of matter to be taught, and suggest the method of instruction. The listing of many things which represents the usual course of study with time factors nicely fixed, determining the form instruction shall take, and the attempting to too definitely prescribe methods of instruction, is much like attempting to control the shape a maple tree shall assume by the application of outside force. The tree developing in compliance with an inner controlling living principle will do a better job. I fully realize the inadequacy of such a comparison, but something analogous to that inner controlling principle working through the teacher while he works toward a clear objective, permitting him to be quite free in the use of all available instructional matter will keep both the teacher and the pupils alive and result in a better "course of study" than non-teaching experts would likely impose. The teacher training must be of a character such as will result in a properly actuated teacher controlled by a knowledge of principles vital to all good instruction. These schools must develop. The teacher must know that they must develop and feel a responsibility for their and his own development.

Criticism of effort that kills initiative must be avoided. The supervisor must watch the direction of development and use the pruning knife at times, but more often he needs to turn up a little bark to see if the tree is green and growing, look for buds and signs of life and promise. A man with a micrometer has no place in a garden.

In this new field we must not be discouraged if we cannot make these schools at once all they ought to become. I have seen many weak efforts in our own school and the schools throughout the country, but have not seen any that were not worth while as a starter.

The director of these schools will have to be clothed with unusual authority, that is for the educational world, and he will need a friendly board with vision and faith in him and in the work, or these schools will become a Cinderella in the household, or a mere form-a-truck attachment to the full-time schools. Forced on to a timid Superintendent and a reluctant full-time Board, they will die and never get buried because the indifference and timidity that killed them will never develop the courage to bury them.

We need to see the great opportunity in the whole upper field represented in Fig. 1, and appreciate the great work that with proper support and administration could there be accomplished. I do not know the exact figures, but it is safe to venture the assertion that every fifteen years or less on the average, every position of skill, every position of responsibility, every position requiring preparation in our whole economic and social structure must be filled by some one especially prepared by training for the place, and that statement takes no note of the expansion and growth of trade, commerce and industry.

The time should come when the business man, if intelligent, will see the thing he calls the "market" in the aggregate, and when he sees a man, one out of the aggregate, only half the average man he could be made by proper educational opportunity, he will see that in the geographical area represented by that man, half his market lost. This seems far fetched but it is absolutely accurate and mathematical. Even on the low plane of economic self interest business in the aggregate must support all our schools if business is to grow.

I think it is a fair conclusion to say that in the interest of everybody, those who leave school early must be given further opportunity. Those who have their plans interfered with by unexpected responsibilities must be given a chance. Those who develop late must be given a chance. Those who start wrong and find it out on time must be given a chance. Those who have a chance and need assistance must be given help. Those who have had one chance and need another must be given

it. The value even of those things we call our possessions depend upon such an enlightened policy.

The wealth of our nation lies in its manhood and womanhood not in some indirect, remote, and fanciful way, but positively, directly, and, in a way, susceptible of mathematical demonstrations. That nation prospers most that best conserves and develops its human element. There is in the upper field of Fig. 1, a whole homogeneous group of problems that need to be organized together. The reaction upon the full-time school would be positive and beneficial. The group in this upper field that would come under the influence of the schools would develop into a force demanding support for education that could not be withstood. Full-time schools will be both better, and better supported, when part-time schools are more adequately and universally organized.

VOCATIONAL TRAINING FOR WOMEN IN INDUSTRY

Report of the Committee on Women in Industry by the Chairman

CLEO MURTLAND
Associate Professor Industrial Education, University of Michigan

General Considerations

Every citizen at the end of his or her period of education (all-day school attendance) should be engaged in some form of productive work. The right type of home-making is productive work of the highest value to the nation, but for a great majority of women there is a considerable period between school attendance and home-making, during which they should engage in some other productive occupation.

The war service of women workers in many types of skilled and unskilled operative and directive work in industry demonstrated beyond further question their ability to assume work calling for a high degree of responsibility and skill. This demonstration of fitness, coupled with the necessity for economic independence of all citizens in a democratic social order, strengthens substantially the claims for the industrial education of women.

Vocational education for trade and industrial occupations should be greatly extended, therefore, in order that each individual girl or woman may be assured the opportunity of doing the highest type of productive work of which she is capable during the period previous to marriage; or if she does not marry, for the period of her working life; or if married and because of widowhood, desertion, childlessness, or some other deviatior from normal married life, she returns to industry as a wage-earner.

Nothing less than a recognition of these problems which confront women wage-earners, and serious constructive education to meet them, will insure the best type of womanhood and integrity of workmanship among women workers.

Vocational education for girls and women is a two-fold problem: (a) preparation for wage-earning, and (b) preparation for home-making. This discussion is confined to the problems of vocational education for wage-earning occupations in industrial fields.

Some Facts and Some Problems

1. Women wage-earners now constitute an important factor in industry and the number is increasing both absolutely and relatively.

1900—5,319,397—18.8 per cent of the women over 10 years of age were wage-earners.

1910—8,075,772—23.4 per cent of the women over 10 years of age were wage-earners.

1919, it was estimated that 11,000,000 of the women over 10 years of age were wage-earners.

2. Industries employing women workers represent a wide diversity of industrial employments. The U. S. Census of 1910 (Vol. IV., page 53), lists women workers in every one of the 127 types of employment except locomotive firemen and engineers; plumbers, gas and steam fitters; railroad brakemen and conductors; teamsters; laborers (road and street building); draymen and expressmen; motormen; policemen; sailors and marines. The census of 1920 will reduce this list of exceptions.

3. Women and girls of all ages are wage-earners.

Age of Women Workers	Number at Work	Per Cent	At Work
10 to 13 years	286,946	8.0	1 out of every 12
14 to 15 years	350,140	19.8	1 out of every 5
15 to 20 years	1,847,600	39.9	2 out of every 5
21 to 44 years	4,302,969	26.3	1 out of every 4
45 and over	1,288,117	13.7	1 out of every 7

4. The largest age group of women workers is 14 to 24 years; 24 is generally conceded as the usual age for marriage. The U. S. Census does not offer data to prove or disprove these statements but, in the judgment of many who have worked in this field, the statements are true.

5. Because of the immaturity, lack of training, and the home residence of a considerable proportion of this 14 to 24 year group they have been low-paid workers. Women living away from home and women responsible for family support, brought into competition with this younger group, have been forced to accept wages insufficient to maintain a safe standard of living or to insure protection in case of illness and old age. The facts show that women workers in large numbers are

responsible for the support of dependents. Workers are entitled to wage rates based upon the demands of the job rather than sex.

6. Specialized machines and scientific organization have created two main types of industrial occupations: (a) the operative type in which the worker performs one or more special operations or processes; and (b) the directive type in which a foreman or forewoman directs the work of a number of operatives.

7. Many industries in which young women are employed are organized on a basis of extreme specialization or subdivision of work in which no traditions of apprenticeship exist. Shifting from a specialized operation to work requiring greater skill and responsibility usually involves temporary loss of wages. Because of this condition many women workers remain excessively long on operative specialties, which can be learned in comparatively short periods of time, when their increasing maturity, experience and training should assure them of advancement to better-paid specialties or to directive or more expert work.

8. Women workers (not the individual woman) are now regarded as a permanent factor in industry and not as an emergency labor reserve. Education for industrial occupations, therefore, demands due consideration in a program of vocational education for women which recognizes preparation for wage-earning as well as preparation for home-making.

9. Social disapproval of industrial occupations for women and girls has militated strongly against the development of industrial education. This applies to industrial occupations in which women have long been employed as well as to newer types of work developed under the modern factory system.

10. Women workers since the advent of the factory system have been exploited workers. Because of the prejudice against industrial work, the lack of apprenticeship systems of training, and the slow development of other forms of trade organization among women workers, they have been largely untrained for their work and uninformed about conditions of their labor and the value of that labor.

Protective legislation modifies standards of employment but education is the only means by which workers can be informed about conditions of their labor and trained for their responsibilities and privileges as workers and as citizens.

11. Under the terms of the Federal Vocational Education Act, vocational training is made possible for women and girls

as well as for men and boys. That public approval of industrial education for women and girls has been merely passive is shown by the fact that states and local communities have not taken advantage of available resources. The Third Annual Report of the Federal Board for Vocational Education shows that only the smallest beginnings have been made in the establishment of systematic vocational education for women and girls in industrial fields.

NUMBER OF FEMALE PUPILS ENROLLED IN TRADE OR INDUSTRIAL* SCHOOLS IN THE U. S. DURING THE YEAR ENDING JUNE 30, 1919

Evening Schools	Part-time Schools	All-day Schools	Total Number
1391	5,340	3,553†	10,284

* Table derived from Table 18, Vol I, page 220, Annual Report of the Federal Board for Vocational Education.

† 1,495 of these students enrolled in Manhattan Trade School were omitted from Federal Board Report.

The complexity of the social, economic and educational problems of vocational education is recognized, but the nature of these problems should insure open-minded study and experimentation in developing and putting into effect an adequate program for industrial education for women and girls commensurate with the importance of the problem. State Boards and the Federal Board for Vocational Education share this responsibility.

12. The states are charged with the responsibility of selecting and training supervisors and teachers for the development of vocational training as provided by the terms of the Federal Vocational Education Act. The supply of women for state and city supervisory positions and for teaching positions in the vocational schools is far below the demand. Lack of supervisors and teachers, in turn, retards the development of vocational schools, and the formulation of desirable courses and standards of instruction.

Solutions of These Problems

1. While in protective legislation, organization of workers, and education of employers and consumers, are to be found some remedies for difficulties encountered by women and girls

in industry, the remedy of most importance is better general education and better vocational education which will insure to women the opportunity to formulate and demand for themselves and others the protection and privileges necessary for successful and satisfactory wage-earning.

2. A considerable part of both these forms of education should be assured prior to the beginning of wage-earning work, but much of it can only be given parallel to the pursuit of such work or during periods when the worker shall voluntarily or involuntarily discontinue wage-earning.

3. Both general and vocational education should give girls an understanding of the conditions of wage-earning work, and the possibilities available for the protection of health, morals, earning capacity and promotion to higher levels of employment.

4. Vocational education should fit the worker to pursue effectively some specialized work, assure advantageous entrance to a wage-earning occupation, and make it clear that employment in one phase of specialized work is but one stage from which she should advance as experience, maturity, and additional training justify advancement.

5. Up-grading vocational education should fit the worker for promotion to more advanced stages of operative work, or directive work, or positions of leadership.

6. Vocational education at the later stages, should fit women, who expect to remain in wage-earning work and those who return to wage-earning when their children have passed beyond the need of mother care, for productive work in occupations which demand maturity, experience, and special training. This should be done in order that these women may not be brought into sharp competition with every young woman worker, no matter what may have been the special training of the latter.

7. Since social approval is essential to the development of vocational education for industrial occupations, it is of utmost importance that educators, employers, and others interested in or responsible for vocational education disseminate authentic information which shall bring about a realignment of social attitudes toward industrial occupations for women and girls. Such social approval will develop a demand for the type of vocational education which results in knowledge of the job, group consciousness, and working integrity among women workers.

8. The states and local communities look to the Federal Board for Vocational Education for help in the development of a constructive program of vocational education for industrial occupations for women, which includes ways and means for developing a demand for industrial education as well as the formulation of courses of study, and dynamic assistance in putting it into operation. This help should be commensurate with the numbers of workers involved and their rights as workers and citizens.

What Must Be Done

1. General education for all girls and boys extending over at least the first eight or ten years of school attendance should be insisted upon in order that intelligent, worthy participation in home and community life may be assured.

2. Vocational education for all workers should be assured in all-day vocational courses before entering wage-earning or in part-time courses which supplement occupational experience and prepare for promotion. While the all-day vocational school or department in most communities serves fewer students than part-time and evening courses, it has been shown that the all-day courses tend to lengthen the school attendance of girls contemplating wage-earning and that vocational preparation tends to create a demand for further trade training and education in part-time or evening trade extension courses.

3. Vocational education supplementing the daily occupation, particularly part-time day courses, should be assured to sixteen or eighteen years of age. When part-time vocational education can be given more effectively and advantageously (without loss of time, with suitable equipment which cannot be duplicated in the school, with a constant supply of new illustrative material with suitable subject-matter from the workrooms) in the business establishment than in the school building, courses should be developed in the places of employment. Instruction that carries its point—that proves its worth in the daily employment—increases the demand for education, both general and vocational. Part-time education is pioneer education. Its success is dependent upon genuine belief in it and effective instruction on the part of the teachers, and persistent distribution of information among employers, parents, and pupils about its aims and functions on the part of educational leaders.

4. Since stimulation, promotion, and development of vocational education is of paramount importance in the ever-widening horizon of women's employment, a staff of workers commensurate with the importance of the problem should be provided by both the State and Federal authorities. Each regional field should have a woman agent for industrial education charged with the duties of stimulating and developing teacher-training courses and all-day, part-time, and evening vocational courses for which the Federal Vocational Education Act provides.

Each state should have a woman in charge of industrial education for girls and women charged with the duty of stimulating and developing the work within the State as outlined by the State Board and approved by the Federal Board for Vocational Education.

5. It is of utmost importance that each state make definite provisions for teacher-training courses for supervisors and teachers for the vocational schools. So long as state and national programs of vocational education depend upon stimulation for their ultimate acceptance and effective operation, definite and sustained effort should be made to attract well-educated, well-trained men and women into the field of vocational education.

CLEO MURTLAND, *Chairman*

Katharine Ball, Vocational Advisor, University of Minnesota, Minneapolis, Minn.

Bernice Cannon, Educational Director, Wm. Filene's Sons Co., Boston, Mass.

Elizabeth Cleveland, Supervisor Special Activities, Public Schools, Detroit, Mich.

Jo. Coffin, International Typographical Union, New York City.

Mrs. Sara A. Conboy, United Textile Workers of America, New York City.

Anna M. Cooley, Associate Professor Household Arts Education, Teachers' College, New York City.

Griselda Ellis, Principal Vocational School for Girls, Newark, N. J.

Elizabeth Fish, Principal Girls' Vocational High School, Minneapolis, Minn.

Helen Fleisher, Chairman Advisory Committee, Trade School for Girls, Philadelphia, Pa.

Laura Drake Gill, Leonia, N. J.

Mary Gilson, Educational Director, Joseph & Feiss Co., Cleveland, Ohio.

Helen R. Hildreth, Director Girls' Trade School, Worcester, Mass.

Helen W. Hazen, Essex County Vocational School, Bloomfield, N. J.

Clara H. Krauter, Assistant for Training of Teachers of Home Economics, New Jersey.

Florence E. Leadbetter, Principal Girls' Trade School, Boston, Mass.

Helen Livingstone, Head of Department for Women and Girls, Cass Technical High School, Detroit, Mich.

Isabel Ely Lord, Director, School of Household Science and Arts, Pratt Institute, Brooklyn, N. Y.

Florence M. Marshall, Principal Manhattan Trade School for Girls, New York City.

Louise Moore, Educational Director, Dutchess Manufacturing Company, Poughkeepsie, N. Y.

Agnes Nestor, National Women's Trade Union League of America, Chicago, Ill.

Mrs. Iris Prouty O'Leary, Special Assistant for Women's Vocational Work, New Jersey.

Leonora O'Reilly, Women's Trade Union League, New York City.

Florence Simms, Industrial Secretary, National Board, Y. W. C. A., New York City.

Eleanor D. Toaz, Director of Home Economics, Rochester, N. Y.

Mrs. Eva W. White, Head Worker, Peabody Settlement House, Boston, Mass.

MEMBERS OF COMMITTEE.

SECTION V

VOCATIONAL EDUCATION AND SOCIAL SCIENCE IN THE HIGH SCHOOL

CONDITIONS OF SUCCESSFUL VOCATIONAL TRAINING IN HIGH SCHOOLS

Report of Special Committee presented by the Chairman

EDWIN A. LEE
Professor of Vocational Education, Indiana University Bloomington, Ind.

I

What is the Purpose of an Industrial High School

The graduate of a high school industrial course may be expected to do one of three things:

> He will enter industry as a regular worker and never advance beyond the stage of "machine worker." (Least probable.)
>
> He will enter industry as an advanced apprentice and in due time advance to a foremanship or higher. (More probable.)
>
> He will enter upon a period of training in a higher technical school and in due time may be expected to become an industrial leader, after a certain period of experience in the industry he has chosen. (Most probable.)

It must be recognized that the graduate of the high school vocational course is a selected individual. He will not belong to the great army of privates in industry, but will be eligible for officership in that army. Consequently the aim of high school vocational courses must be thought of in terms of understanding industrial problems as well as in terms of gaining certain proficiency in given occupations.

The aim of vocational training in high schools may be stated as follows:

Preparation of individuals for entrance into industrial occupations.

Acquaintance with the technique of the trade being studied.

Understanding of the related technical knowledge of the trade.

Appreciation of the "human nature" element in industry.

Some degree of skill in certain general operations of the trade.

Intelligent and responsible citizenship, or

Preparation for entrance into higher technical schools.

This second aim is probably realized in the great majority of cases under number one.

II

The Teaching Staff

There are three types of teachers to be considered:

The Shop Teacher.

The Related Subjects Teacher.

The Academic Subjects Teacher.

There are four sets of standards to be considered:

Relative to Qualifications.

Relative to Teacher Training Programs.

Relative to Salary.

Relative to Contact with Industry.

Conditions which must be met by all three types of teachers:

Relative to Qualifications:

All teachers must meet all legal requirements—those embodied in the Smith-Hughes Law and those embodied in the vocational law of the State in which the teacher is employed.

All teachers should possess such personal qualities as initiative, adaptability, willingness to learn, the desire to grow, high ideals, and a belief in the importance of the work which they as teachers are doing.

Relative to Teacher Training Programs:

There should be available, both from the point of view of time and location, a program of teacher training adapted to the problems of the particular high school concerned.

Attendance upon the teacher training courses in the case of those teachers whose preparation does not meet the minimum standard should be a condition of tenure.

Attendance upon advanced teacher-training courses, when available, should be a condition of increase in salary.

Conditions which must be met concerning Shop Teachers:

Relative to Qualifications:

The minimum technical requirements after the legal requirements are met should be (1) two years of successful experience in the trade to be taught after having attained journeyman standing and (2) the possession of related knowledge in terms of the physics, chemistry, and mathematics of the trade.

The shop teacher should possess as an absolute minimum the equivalent of eight years' training in the public schools. On this foundation must be laid the professional training.

The shop teacher should have studied or should be studying two groups of professional subjects. The major group, which should come first in point of time, includes three phases of the teacher's problem.

1. How to analyze his trade.
2. How to organize the material he possesses into courses he can teach.
3. How to teach.

The minor group, which is no less important than the major group but must be postponed until the emergency represented by the first is met, consists of three courses of study whose purpose should be as follows:

1. Insight into the aims and purposes of the vocational education movement.
2. Understanding of the social, economic, and political problems of industry.
3. Completion of those parts of his trade in which a teacher is not entirely proficient.

Relative to Salary:

It must be recognized that a skilled workman who is also a successful teacher is an extremely valuable man in industry at the present hour. It is, therefore, necessary to pay such a man a salary at least equivalent to the income he would receive if at work in industry a corresponding length of time. The time is not far distant when the school will have to go further and outbid industry for the services of skilled shop teachers.

Relative to Contact with Trade:

The shop teacher should periodically, at least once every two years, spend a term of two or three months working at his trade under industrial conditions.

The shop teacher should offer at least one evening course each year designed for skilled workmen in his own trade.

One test of his efficiency as a teacher should be (1) his ability to attract such men and (2) his ability to hold them in those courses.

Conditions which must be met concerning Related Subjects Teachers

Relative to Qualifications:

The related subjects teacher should be a graduate of a four year college course with a major in the subject he proposes to teach A graduate of an engineering college is preferable to a graduate from a liberal arts college.

The related subjects teacher should have pursued or should be pursuing investigations in the field of vocational education and sociology.

It is highly desirable, though not absolutely necessary, that the related subjects teacher should have had actual experience at wage earning under industrial conditions.

Lacking such experience it is essential that his knowledge of industrial conditions shall be gained from first hand contact with industry rather than from books.

Relative to Salary:

Such a teacher is not easily found. When found his value to the vocational program is such that he must be paid a salary in excess of that paid teachers of his subject under ordinary school conditions.

Relative to Contact with Industry:

The value of a related subjects teacher may be said to be in direct proportion to his understanding and insight concerning industrial problems, and it must be in terms of current industrial conditions. That related subjects teacher, therefore, who is of greatest worth to the vocational high school is he who takes every opportunity to sudy the industrial conditions of his community and who when occasion offers actually works for wages in the industrial plants of his city.

Conditions which must be met concerning Academic Subjects Teachers.

All that has been said regarding the Related Subjects Teacher holds true for the Academic Subjects Teacher.

The nearer the latter type approaches the standards laid down for the Related Subjects Teacher the more successful will be the vocational program of the high school.

III

The Plant and Equipment

There are three types of high schools to be considered:

The Cooperative Industrial High School.
The Industrial High School.
The Regular High School containing an Industrial Department.

Concerning the Plant there are three sets of standards to be considered:

Relative to Construction.
Relative to Location.
Relative to Legal Requirements.

Concerning the Equipment there are three sets of standards to be considered:

Relative to Selection.
Relative to Arrangement.
Relative to Legal Requirements.

Conditions which must be met by all three types of high school:

The plant and equipment must afford or interpret real vocational experience and the pupils approximate in their work the same conditions as they are to work under in their chosen occupation.

This means that the plant and equipment must be designed, as far as possible, for training in specific industries.

It follows, therefore, that the plant and equipment must be designed and chosen only on the basis of a throough understanding of the industry for which training is to be given.

Conditions which must be met by the Cooperative Industrial High School.

Concerning the Plant:

Relative to Construction, Location, and Legal Requirements.

The school building of the cooperative high school should be modern and up-to-date, meeting all legal requirements laid down for school buildings, and being located in accordance with the principles which determine the location of all school buildings.

Concerning the Equipment:

Relative to Selection and Arrangement:

The "shops" existing in the cooperative high school building are not shops but laboratories in which the instructor demonstrates principles and interprets practices which the student is experiencing in the shop.

The selection and arrangement of equipment is, therefore, to be made from the laboratory point of view.

Conditions which must be met by the Industrial High School.

Concerning the Plant:

Relative to Construction:

Each related industrial group, e.g., the metal trades, should be in a separate building.

The shops should be similar to factory construction in standards of lighting and ventilation, numbers of stories, etc.

There should be vestibule classrooms within the shops.

Other classrooms should be on the same floor as the shops.

Relative to Location:

The buildings should be located in strategic centers for the industry for which training is being given.

Relative to Legal Standards:

The building must meet all legal standards for factory construction—fire escapes, exits, fire doors, etc.

Concerning the Equipment:

Relative to Selection:

The equipment must be up-to-date and comparable to that used in the industry.

There should be in the shop representative types of modern machines rather than a large number of machines of the same kind.

Relative to Arrangement:

The equipment must be arranged from the point of view of a shop rather than a classroom.

The equipment should be organized and plotted so as to make it available for illustrations of planning and routing.

Relative to Legal Standards:

All legal standards of the State Board for Factory Inspection regarding safeguarding of machinery, etc., must be rigorously met.

Conditions which must be met in a Regular High Schoo containing an Industrial Department.

All that has been said concerning the Industrial High School holds true for the industrial department. The aim should be to approximate the standards laid down for Industrial High Schools as far as is possible.

IV

The Relations Between the School and Industry

There are three groups to be considered:

The Employers.

The Employees.

The School Authorities, representing the public.

There are three sets of standards to be considered:

Relative to General Cooperation.

Relative to Advisory Councils.

Relative to Definite Agreements.

Conditions which must be met by all three groups.

Relative to General Cooperation:

All genuine cooperation rests on a foundation of mutual confidence on the part of those cooperating, therefore

There must be confidence on the part of the employers and employees in the sincerity of purpose of the school authorities in offering vocational training.

There must be confidence on the part of the school authorities in the sincerity of purpose of the employers and employees in supporting the vocational program.

Relative to Advisory Councils:

There should be an advisory council made up of representatives of the employers, employees, business men, and professional men. The number of representatives on the council should probably be between eleven and seventeen.

It should be the function of the advisory council to advise with the responsible school authorities concerning general policies, courses of study, equipment, location of new buildings, etc.

The representation should be chosen by group organizations rather than by the school authorities; that is, by employers' associations, labor unions, chambers of commerce, rotary clubs, etc.

There should be advisory committees for each trade taught in the vocational high school whose function it would be to advise with the man or men responsible for training in the trade which they represent.

The advisory committee should be small, probably one employer and one employee and the vocational director or the principal of the high school.

Relative to Definite Agreements:

Definite agreements having the force of contracts should be worked out between all parties concerned, including the students in the vocational school.

These agreements should be in terms of

The kind and amount of training given in the high school which shall be recognized as bona fide vocational training by all the parties to the agreement.

The money value of the training in terms of increased wages at certain specified stages in the training.

The status of the student in the industry and labor union at certain specified stages in the training and upon the completion of training.

The further training which will be given the student in the factory after completion of the high school training and the specific responsibilities of each party to the agreement for carrying on the training of the worker.

Conditions which must be met by the Employers and Employees.

Relative to General Cooperation:

The industrial high school should be considered the best source of supply for trained workers. Past experience should have made this evident.

Employers' associations and labor unions alike should cooperate in placing students in satisfactory positions both during training and after completion of the course.

Representatives of the employers and employees should appear frequently before the students of the vocational high school and by their attitude and what they say make clear their support of the vocational program.

Conditions which must be met by the School Authorities.

Relative to General Cooperation:

There must be a clear understanding of the purpose of the

vocational high school on the part of the employers and employees.

Industry in general must have confidence in the director of vocational education—his knowledge of his problem and his ability to organize and administer his work. The same is true for the principal of the vocational high school. Industry in general must have confidence in the technical knowledge and manipulative skill of the shop instructors.

V

Understanding the Vocational Needs of the Community

There are certain principles which hold true for this section.

The final test of the vocational high school is whether or not its students enter and have a certain measure of success in the occupations for which they have been trained.

That high school will have the largest group of graduates in the occupations for which training has been given which aims to meet the industrial needs of a specific community.

That more locally the term "community" is interpreted the more definitely can industrial needs be analyzed and met.

There are three sources of information concerning the vocational needs of the community which should be considered:

The Vocational Education Survey.

Civic and Community Investigations not primarily vocational and

Personal Investigation by Vocational Education Staff.

Conditions which must be met concerning the Vocational Education Survey.

The vocational survey must be a continuing process. It must be up-to-date. It can never be completed, for conditions which it purports to report are always changing.

The vocational education survey should result in definite progress in the vocational program. Too many vocational surveys have been made which resulted in no apparent modification of the vocational program of the community surveyed.

The irreducible minimum of information which a vocational survey should make available is

Technical knowledge and skill necessary for success in a given industry and

The absorbing capacity in terms of workers in each occupation.

A study of vocational education surveys already made would indicate that there is no maximum of information which may be included.

Conditions which must be met in regard to Civic Investigations.

All information concerning the community should be studied by those responsible for the vocational program. Particularly valuable will be studies made by such organizations as Chambers of Commerce, Social Welfare Organizations, Labor Organizations, and, within a short time, the community surveys projected by the Interchurch World Movement.

Conditions which must be met relative to Personal Investigation by the Vocational Education Staff.

Those who should have the clearest insight into the vocational needs of the community are those directly responsible for the vocational program—the vocational director, the principal of the vocational high school, and the vocational teachers.

It follows, therefore, that to as great a degree as possible the vocational education staff should be responsible for initiating and continuing the vocational education surveys.

In this connection the following quotation from Mr. Allen's answer is interesting:

"The writer believes that if all agencies that are now making surveys and getting out occupational descriptions and establishing a vocational vocabulary could be brought together under some government agency and be induced to agree upon standard terminologies, a great step would have been taken in the understanding of the subject matter required for training in the fundamental occupations."

VI

Administrative Relations Within the School System

There are certain principles which hold true for this section:

There must be positive support of the vocational program by the Superintendent of Schools.

There should be intelligent understanding of the vocational program on the part of the entire teaching force of the community, particularly the high school principals.

There must be clearly understood lines of authority and responsibility concerning administrative relationships and procedure. These should be a matter of written agreement subscribed to by all concerned.

There should be an assistant superintendent in charge of vocational education responsible to the superintendent for the carrying out of the vocational program.

Conditions which must be met when there are separate industrial schools.

There should be a principal for each vocational school responsible only to the assistant superintendent in charge of vocational education.

With the vocational high school there should be heads of departments, e.g., the metal trades, responsible only to the principal of the high school.

The instructional staff in each department should be responsible only to the head of the department.

All students in attendance upon the vocational high school classes should be there for the purpose of studying a specific industry or occupation.

Conditions which must be met when there is a vocational department in the general high school:

The head of the department should be responsible to the director of the vocational education rather than to the principal of the high school, except in those matters relating to the administration of the school as a whole.

There must be a separate and distinct program for the vocational students.

The vocational teaching staff should be responsible to the head of the vocational department.

It must be clearly understood that the vocational school is not a dumping ground for the undesirables of the academic high school. At the same time there must be opportunity for interchange when necessary or desirable.

VII

Standards of Proficiency in Vocational Work

The following principles are held to be true:

The industrial high school exists for the purpose of teaching in terms of principles rather than in terms of skill.

It is not the aim of an industrial high school to turn out full-fledged journeymen in any trade.

Standards of Proficiency may, therefore, be thought of in terms of

Intelligent Understanding of Processes.

Quality of Workmanship.

Speed in Production.

Conditions which must be met relative to Intelligent Understanding of Processes.

Students must know why certain things are true rather than that certain things are done. For example, a student should learn why a lathe set a certain way will cut eight threads to the inch.

Students should be taught in terms of unusual problems rather than usual problems.

Conditions which must be met relative to Quality of Workmanship.

The product should compare favorably with the commercial product.

The product should be used or sold.

If the product is sold, it should command the market price.

The standard must be established in the student's mind by careful examination of the work done in factories.

It follows that the materials and tools used must also be of the same standard required in industry.

Conditions which must be met relative to Speed in Production.

When the conditions given above have been met satisfactorily the element of speed in production becomes of importance.

It is doubtful if training in speed can be gotten as well under school conditions as under factory conditions.

VIII

Measuring the Efficiency of the Vocational Program

The committee does not propose to submit standards of measuring the efficiency of a vocational program at this time. It believes, however, that a careful answering of the questions proposed below together with a scientific weighing of the answers obtained is the starting point from which dependable standards may be evolved.

There are three groups which must be considered:

The Employers and Employees.

The Graduates and Non-graduates of the industrial high school.

The School.

There are two approaches which may be made:

The approach represented by Points of View and Attitudes of Mind.

The Definitely Ascertainable and Measurable Facts.

Some of the questions which should be considered regarding the Employer and Employees.

Relative to Points of View and Attitudes of Mind:

Are the graduates from the vocational high school recognized by the employers and employees as qualified for advanced standing in the trade for which they have been trained?

Do the employers and employees favor further training in the high school?

Do they consider that the community gets value received for the money expended on high school vocational education?

Relative to Definitely Ascertainable and Measurable Facts:

How many of the employers have entered into an agreement with the school authorities concerning graduates of vocational courses?

What is the purport of these agreements?

Has the fact that trained graduates are entering certain industries had any effect upon the labor-turnover problem in those industries?

Some of the questions which should be considered regarding the graduates and non-graduates of the vocational high school.

Relative to Points of View and Attitudes of Mind:

What is the attitude of the students of the high school toward their work?

What is the attitude of the graduate toward his work?

Does the student see anything more in the training he is getting than preparation for livelihood?

What is the attitude of the students towards labor unions?

Toward capital?

To society at large?

Relative to Facts:

What proportion of the students who begin specific vocational courses actually complete the course?

Of those who actually complete the course what proportion enters upon employment in the occupation for which they have been trained? What proportion enters technical schools? What becomes of those who do neither?

Is there any difference in the amount and kind of work turned out by high school graduates and that turned out by boys of the same age trained in the shop? Does this remain true over a period of years?

What are the facts concerning the wages of high school graduates? Tenure of positions? Promotions?

What is the comparative success of the non-graduates who have entered upon employment in the occupation for which they were in training?

Some of the questions which should be answered concerning the school.

Relative to Definitely Ascertainable and Measurable Facts:

Has the school a follow-up system for its graduates?

How long does it keep in touch with its graduates?

What special provision does the school make for those who do not complete the course?

What proportion of its graduates and non-graduates return for further study after entering upon employment?

EDWIN A. LEE, *Chairman.*

E. G. Allen	George E. Myers
C. H. Bailey	W. E. Roberts
Ora Blanchar	Milo H. Stuart
Elizabeth Fish	Dora Wells
G. A. McGarvey	E. A. Wreidt

Committee on Industrial Education.

Vocational Education Association of the Middle West.

The following individuals have contributed valuable suggestions and material: George F. Buxton, Helen Hildreth, Robert J. Leonard, Florence M. Marshall, David J. MacDonald, James E. McKinney, Arthur F. Payne. Robert H. Rodgers, K. G. Smith, John O. Steendahl.

DISCUSSION

R. H. RODGERS
Specialist in Industrial Education and Teacher Training, State Department of Education, Albany, N. Y.

The report just submitted by the Chairman of the committee is a most comprehensive one and represents a great deal of work and careful study on this special problem. Credit is due each and every member of the committee for the efforts made to set up usable standards for the development of a program of industrial education.

In the limited time allotted to the discussion of the report the following aspects will be considered: first, the purpose of vocational training and its relation to the problem; second, fundamental elements of administration and organization that must be considered; third, checking or measuring the efficiency of the vocational work.

In discussing the first aspect just indicated it is assumed that if industrial training is successful it will prepare young people for immediate entrance into a specific occupation in the field of industry, in an intelligent, wage-earning capacity. The accomplishment of this purpose will necessarily narrow the curriculum and eliminate in the main the possibility of utilizing this course as preparatory to higher technical institutions. Successful preparatory work measured in terms of the entrance requirements set up for technical colleges and universities and successful industrial education in terms of the requirements of industry are different problems. In view of these facts successful industrial training is shaped and organized to meet the occupational requirements. It means in other words that these courses must be differentiated each with its distinct end point.

The second aspect of this discussion is concerned with details of administration and organization necessary to accomplish the purpose indicated above. It is not necessary to present to this Society the fact that preparatory to the development of any program of this kind there must be a thorough understanding of the occupational requirements and needs of the community. The securing of the basic information and the formulation of policies and programs will first of all need a specially trained school executive who knows industry from personal contact, who

knows the function of public education, and further has the force and ability to bring the two together.

The formulation of courses based on the actual occupational facts might be in terms of two-year units. The fact that the high school mortality is so extremely heavy would justify this organization. The first two years might be given over to distinctly trade courses. These courses, complete in themselves, would prepare for direct entrance into occupational life, should the student be disposed to discontinue school work. On the other hand, if the pupil continues for the full four years, the last two years might very well be given to the technical aspects of the shop course that was specialized in during the earlier period. A practical illustration of this organization is as follows: A boy pursues a machine-shop course intensively for the first two years and is prepared for entrance to that trade; for the last two years he is taking an intensive course in machine design preparing him for the drafting room.

The success of this organization will depend in a large measure upon the time element. At least three clock hours daily should be given to the shop or drawing subjects if the standards of present-day industry are ever approached. This time element may mean a modification and an elimination of some of the time-honored academic secondary school subjects but any changes of this nature will be justifiable in the interpretation and accomplishment of the purpose of this form of education.

The report places emphasis upon the teacher, and the housing and equipment, developing in each instance the essentials of success. These factors need no further discussion before this body. The problem of leadership was discussed but is of enough importance to justify additional comment. If set up as a part of a cosmopolitan high school the principal or administrative officer in charge must be in sympathy with the work and familiar with the essentials of organization necessary to develop it successfully. The immediate head of the department should be a technical or trade-trained teacher familiar with the problems of organizing courses, equipment, materials and improving the work of the teachers. This latter problem is one of the most urgent of the present problems in vocational schools.

At this particular time it is pertinent to sound a general warning pertaining to the development of acceptable vocational work within a cosmopolitan type of school. If it succeeds in

these surroundings it must have its well-defined purpose, an independent organization; special rooms, equipment and materials, qualified teachers, broad, intelligent and sympathetic leadership and well-developed lines of administration and responsibility.

The third general point is the element of checking or measuring the accomplishment of the organization. The very practical standard that must be met is the requirement of present-day industry. Is the pupil prepared to immediately enter occupational life with a reasonable amount of manipulative skill, intelligent on the technical aspects of the work, and above all is he able to think on his job? These are the essentials and requirements of successful vocational training in any school or under any condition.

THE COMPREHENSIVE HIGH SCHOOL CANNOT SUCCESSFULLY TEACH VOCATIONS

Report of Special Committee by the Chairman

A. D. DEAN
Teachers' College, New York City

(A Summary)

1. The weakness of modern academic education of school and college is its failure to make a vital appeal to the mind of the student. It is accepted (?) by the student in a desultory, unappreciative, disinterested fashion. To meet and overcome this attitude is the great problem with which every teacher is now concerning himself. In dispelling this indifference nothing is more effective than to awake in the student's mind the belief that the study which he is pursuing is related definitely and directly to what he hopes to accomplish in life. When that feeling is aroused the study becomes vital to the individual, the victory of the school conquest over life's activities is accomplished. There can be awakened in practically all our young people a desire for success. For many of them the futility of the present-school program—four years of grasping for something, awarded with emptiness and dissatisfaction—answers the inquiry, "Why do so many boys and girls not finish high school?" Youth is the period of idealism; air-castles are built; future successes are projected; imaginary crowns are foreseen; all in the absence of conflict along the way, or the least probability of the failure of any attempt. The school must have an intimate relation to the community and to the state. The school must respond to local interests and not be absorbed with the traditional only. We have not found the meat in the cocoanut for we do not break the shell.

2. It would be pleasant to contemplate that boys and girls do not begin work for wages until they are sixteen years of age. The fact remains, however, that thousands of boys and girls go to work as early as twelve and fourteen years of age. Compulsory education rigidly enforced might obviate in part the delinquency mentioned above, but from necessity some must go to work early.

They leave school before they have any civic or vocational background for group work and civic adjustments. In order to maintain a democratic government, American citizenship must more and more be founded upon better individual and group efficiency which must take account of higher and more potential forms of vocational skill and intelligence.

Some form of school should be provided that will control and guide, upon the basis of interest, effort and environment, till the youth are intelligently placed on farm, in home, in business, or in industry. Continuation schools, trade schools, part-time schools, vestibule schools, and apprenticeship systems begin their work where the public-school systems fail to furnish the type of education desired. A reorganization of the worthy features in all plans of education mentioned above into a well-suited vocational secondary school for different types of industry and serviceable citizenship would reclaim the multitude. The new school would require an elective course of study, new methods of presentation, and a full recognition of the psychology of adolescence.

From the vocational standpoint, class-room teaching must be intelligently analyzed and connected with vocational and other occupational work. Vocational objectives must be set up as an end and the knowledge and skill required to reach that end must be obtained first hand. By first hand is meant the plan or project or case analysis of given problems in any vocation and then the processes that can be found in each case.

For those who undertake the commercial courses, the method of approach is found only in intimate relationship between the vocational school and the kinds of real business that are to be served by the graduates of the school.

For agriculture there must be real work on the farm, under the actual farming conditions one will meet in his future crop farming.

The home maker must have practice in the home—her home; parlor, bedroom, kitchen, bath, nursery—supplemented by the school in its household arts department.

In industry, the shop must be real, must be managed by an expert, and must be equipped with all the machines and tools for turning out finished products. To attempt shop work in any other way is a delusion, waste of money, and utterly unfair to the boys in the school.

A fundamental principle that can not be disproven or disregarded is that the vocations must be learned under natural conditions where the vocation is practiced. The vocation requires skill, intelligence, and morale, or perhaps better, patriotism.

Medical schools, law schools, business schools, teachers' schools, army schools, naval schools, many private schools, printers' shops, etc., are vocational. They are organized for the promotion of education in their particular fields and they employ experts in their field to direct the organization and to furnish the kind of instruction desired.

Our new advances in vocational education will come in the same manner and function as effectively for society as the types of schools just enumerated.

3. Vocational agricultural education must meet the needs of the following classes of people:

(a) Farm-reared boys from 14 to 18 years who are now living on the farm and have completed the eighth grade of the rural school.

(b) Farm boys from 16 to 23 years of age who quit school from the fifth grade up, who are now working on the home farm or as a hired hand on a neighbor's farm. They will not attend an all-day school any more but could be attracted to a school giving certain units of agricultural instruction on part-time basis. Also, we shall include in this group the young man whose education is not the equivalent of the fifth grade of public school but who is a member of the farm activity clubs and who attends lectures provided by state or federal government and is interested by them.

(c) Young married men from 24 to 30 years of age who are renters or hired men living in separate houses. In exceptional cases, owners of a tract of the parental homestead, deeded as a gift from the father.

(d) Young men from 28 to 40 years of age who are well-to-do renters or recent purchasers with a heavy mortgage.

(e) A few older farmers who are very much interested in some special phase of farming as breeding or fruit growing.

(f) A very few city boys and men of all ages who want to learn farming but have no practical experience on farms.

(g) The negro share tenants of the South who do not own farm animals.

(h) The negro farmers of the South who own land and stock but have little or no agricultural training in the economy of farming.

In teaching vocational agriculture the learner must be kept in constant and intimate contact with farms and farm conditions in the region where he expects to reside and pursue his vocation because:

(a) Farming demands a wide range of operations, skills, and kinds of work which vary greatly from region to region, and from one kind of crop to another.

(b) On the typical American farm the owner is manager, superintendent, foreman, and laborer. Vocational agriculture must take note of all his activities.

(c) The farmer operates with his own tools, equipment, capital, etc., and is responsible for their careful handling and up-keep.

(d) Weather, soil, time of planting, method of cultivation vary for regions.

(e) School farms are too artificial from a managerial standpoint, frequently from many other standpoints, to be of instructional value as a practise farm.

(f) Success in farming depends largely upon the occupational and the scientific knowledge of the above factors and upon good judgment in their use and application.

For reasons and conditions mentioned above and for other very obvious ones vocational agriculture must be taught in the region where those who study it now live and shall live.

For group (a) mentioned above a great deal of the work may be done at the regular high school, supplemented by a supervised home project.

A large number of this group will go to high school. Therefore, some vocational work in agriculture must be given by the local high school. If the number is great enough for a teacher all time, employ him, but if the number is small, two schools could club together and get a good teacher to serve each school one-half of each day, or spend alternate days at each school.

For group (b) instruction can be given only on the unit, part-time plan. Their work can be made to correlate with their instruction which may be given at some convenient place other than school building, if necessary. Of course the school building

with good shop and laboratory equipment should be a factor of instruction.

The work of groups (c), (d), and (e) will follow largely the project-problem plan of work and will not necessarily meet so often. Their work will be upon a somewhat higher plane and may deal with the economies and business of the farm.

For the group (f) the surest and quickest approach to solution of their problem is to break city relations and business, move to the region where they wish to farm and begin with unit-instruction courses supplemented by the help and experience of the leading farmers of that community.

Groups (g) and (h) offer a specific problem that will solve itself in the long run with encouragement to acquire farm lands, buy good farm machinery and attend the same instruction courses offered on part-time basis as given to other farmers of that region.

To teach agriculture properly, there must be, for the best execution of the program, a specially fitted school plant of a purely vocational environment.

The agricultural laboratory is coextensive with the region receiving instruction. It may be an area of several hundred square miles. The laboratory of agriculture is decentralized while the laboratory of the shop is centralized and draws its patronage from near-by industry.

4. Passing to industrial education of the shop and factory types there are a great many things apparent. The laboratory is centralized, the organization is close, the output is exact and uniform, there is much use of automatic machinery, there is greater need of a division or classification of labor, and single workmen do not turn out a finished product.

Two questions arise as to what shall be the program or plan of operation.

1. Shall we teach the craftsman's method whereby one person makes a completed thing from start to finish?

2. Shall we teach the factory method whereby one person does one operation upon each thing as in turn it reaches him?

Perhaps the average high school can accomplish some good work among a certain type of boy with the craft plan, but certainly not great numbers.

It is certain that the average high school can not get satisfactory results by attempting the factory method. No high school, within my knowledge, of the ordinary type has ever

succeeded in teaching the trades well within the school environment.

Let us call the primary objective of vocational education as specifically vocational; then, we shall say, the primary objective of secondary or high school education is general education, if not college preparatory.

Experience has taught that there is no such thing as general industrial education; each industrial vocation has its own specific aim which can not be made to conform to a scheme of secondary education.

The industrial vocational school must look to industry for aim, content, and method. The school must keep contact with modern methods of production, with employers, and with employees of the industry which it expects its graduates to serve. If the vocational high school is placed under the same administrative head as the other high schools of a system, there is grave danger of its courses being modified so as to vitiate their real serviceable purpose. The aims, attitudes, and ambitions of students in industrial education are different from the aims, attitudes, and ambitions of students in the ordinary high school. These differences can be met only by changes in instructior and administration. Furthermore, industrial vocational education has tested out and fairly well-established objectives and methods, while secondary education has, as yet, no clearly defined policy.

For practical reasons it is impossible to combine under one roof classes and shops of so great variety as to serve adequately the large number of skilled, semi-skilled, and unskilled vocations in a community. It might be done in a small city. Even this plan is objectionable because the unification of the school plant is usually broken up by placing the shops in the basement or in a detached building unsuited for the purposes.

As a rule, well planned, successful schools for industry are now established for single vocations or for related trades within the region of the industries they serve. The ordinary high school would necessarily be located in a residential section of a city.

Another question arises: Can the ordinary high school make its course of prepartion so flexible as to meet the demands of: (1) unskilled labor, (2) machine operatives, (3) skilled groups, (4) technical groups, (5) administrative groups in industry?

For group (1) (viz., the wielder of a pick or a teamster) vocational training needed is best secured on the job under the direc-

tion of a foreman of mean technical knowledge. The recruits for this group do not come from schools. In general, the group does not possess potential mental ability and will scarcely rise above their present jobs, however, desirable in a democracy that they should rise.

Recruits for group (2) (machine operatives) include women, minors, and the best of the unskilled group. Education for this group is possible in the vocational school that duplicates the industrial plant.

Late developments, through experiment, show that best results are achieved by schools located within the plant area and overshadowed by the plant itself, but operated always under state supervision.

This school can not be a part of a city school system. It must be complete within itself and must meet the needs of the laborer in a democracy.

For the (3) skilled group, the three types of schools generally conceded as good are the unit trade preparatory, the part-time industrial school, and the trade extension evening classes.

Some of the education for this group may be conducted by the secondary schools and the colleges, but this plan usually fails because of the type of instruction provided—members of school faculties are used rather than skillful, intelligent, vocational experts selected for their knowledge of industry and labor from first hand, daily contact with both. The director of this school group must be free to cooperate with manufacturers and tradesmen. He must avoid academic tradition and standards.

For boys, ages 14 to 16, initiatory preparation for their vocations may be carried on outside of the industry but their final preparation for entering fully into the work of the industry can best be done in the school connected with the industry.

For the (4) technical group, most of the education can be had at the colleges and universities. A great number of another very effective class of technical workers come from technical schools of secondary grade. But the education received in this type of school is again distinct and vocational; they are organized as schools of business, engineering, commerce, printing, etc.

For the (5) administrative group in industry there is a well-defined field of education under departments of administration in many schools, factory offices, foreman trainers, personnel direction and placement, and by passing through the various

stages of management in the different departments of the industry for the purpose of learning the intricacies of production and of making a study of productive economy. This group can be taught with but little equipment. Much valuable experience was gained about the education of (4) and (5) groups during the war and the methods of training followed then will likely come into general use quite rapidly. The one important bit of experience that must be incorporated in organizing vocational training is that the academician with his bookish program will fail utterly in this field of practice and progress.

The general conclusion that I wish to offer is that, in the main, vocational education cannot be successfully given in the comprehensive high school. A close study of any large industry or other vocation will disclose that all education is becoming more and more of a special nature.

VOCATIONAL EDUCATION IN THE COMPREHENSIVE HIGH SCHOOL

MILO H. STUART
Principal of Arsenal Technical Schools, Indianapolis, Ind.

Vocational Education as defined in the Smith-Hughes Act (and it is in that sense that we are using it here) refers to those lines of training which lead to specific occupations in the industrial, commercial or home economics field. It has long been demonstrated that a public high school can give preliminary training for law, medicine, and the other professions. It is, I think, quite generally conceded, also, that it can if properly equipped, give practical courses in home economics and in the commercial branches.

The question under discussion, then, narrows itself to this—To what extent can the public high schools give definite training for specific industries? In addition to their academic, commercial, and home economics work, can they do a high grade of vocational training for crafts requiring technical skill? That's no small undertaking for any school. "A high grade of vocational training," means the kind which will command the respect of employers. If the men who hire skilled workmen regard the high school training as a joke, it is a joke, and a rather expensive one. Next, it means that kind of training which will enlist the cooperation of employees. Those with whom the boys expect to work must have the attitude of welcoming them.

And third, this training must meet the educational requirements of state and federal authorities. This means the teachers must not only be qualified tradesmen, but must meet the professional requirements of teachers. The pupils must take certain amounts of related subjects, supplemented by civics or English. We high school men have been told quite often that no high school could meet that three-cornered requirement of employers, employees, and school authorities. The only way to prove that "there is such an animal," is to produce the giraffe. I suppose the only reason the writer is asked to discuss this topic is because he is connected with a comprehensive high school which is incorporating vocational courses in its regular work just as fast as, and almost faster than, its building

space will permit. So, there is no apology for being entirely concrete as to just what our own school is doing.

We are maintaining in a way that is approved by both state and federal authorities, regular vocational courses in printing, automobile work, machine shop practice, electrical construction, bricklaying, and agriculture. This does not include our pre-vocational or vocation finding courses, neither does it include pre-engineering work designed for boys entering technical universities. We are at present almost as crowded as the old woman who lived in a shoe. Until the buildings now under construction are completed, we can not hope to add many other courses.

Even these six lines have been enough to demonstrate several things to us. In the first place, we have been surprised at the ease with which they were started and the regularity with which they have maintained themselves. Employers and employees alike have been ready to help at every step in the road. The United Typothetae of America has given its unqualified sanction to the work in printing and has been most generous in its support. The local Masons' Union not only approved the class in bricklaying, but the President of the Union—a most capable man—offered his services as instructor, the mason contractors paying the regular apprentice wage to the boys attending; the local machine shops have accepted our boys just out of the machine shop practice courses in a way that has pleased the boys in even these high-priced times; the farmers about have gladly cooperated in the practical training of our agricultural boys. Altogether, we have become thoroughly convinced that obstacles in the way of high schools doing vocational work are largely imaginary.

There are just two essentials in order to be ready with a real vocational course in a high school. The first is a teacher. To procure a good tradesman teacher, is the one difficulty which is real. Right here may I be allowed a word regarding any arbitrary set of requirements which a man must meet to be employed as a teacher. The North Central Association of Colleges and Secondary Schools has as a goal eleven hours of professional training for high school teachers. What about the bricklayer who comes off of the job Saturday noon to become a teacher Monday morning? The vocational authorities have established systems of teacher training which are certainly

commendable and should be helped along, but we have had to have these rulings waived time and again in order to be able to employ the man who is competent to do the work of the trade. A system of teacher training which requires two hundred and twenty, or any number of lecture hours, as a pre-requisite for vocational employment, will never, in my judgment, meet the situation. The tradesman who finds his occupation irksome may join these professional classes in the hope of evolving into a teacher with teacher's hours, a permanent tenure, and with a pension at the end; but the enthusiastic, well-trained, red-blooded, magnetic craftsman who could handle a vocational class with rare success will seldom under present conditions turn from his trade even for part-time or evening courses in the hope that he may become a teacher. He is too busy with the work in hand to even consider such a career. The better plan, in my opinion, is to permit the local authorities to employ the best tradesman and promising teacher it is possible to secure when the demand arises. Take him without professional training, if necessary. Employ him for the full year with the understanding that during the summer months he is to take six weeks or two months of professional training in order to entitle him to employment the second year. The state and federal authorities can establish these professional courses for vacation time and require this tradesman-teacher to take these courses until they are satisfied that he is prepared for professional vocational instruction. The whole point is that local school authorities must be free to employ as a teacher a tradesman with good personality and let him train after he has become convinced that he wants to work with boys. Teachers can be found that way, teachers with individuality and skill.

Now, for the second essential, Garfield's old definition of a school as Mark Hopkins on one end of a log and himself on the other, will not quite apply to industrial training. Instead of the log, you are obliged to have an up-to-date shop. I suppose Garfield would have allowed Hopkins to select the log. At any rate, the very best tradesman we can find is the man to consult regarding shop equipment. Given tradesmen teachers and well equipped shops, we see no reason why the number of vocational courses of a high school should not be governed by the list of important occupations in the community, for we do not have to worry about pupils. **We have the boys.** In that fact lies the

first and biggest reason why the high schools ought in my judgment to enter extensively into the vocational work. Private schools and heavily endowed special schools may produce an excellent quality of trained boys, but it does not appear that they can ever produce a sufficient **quantity** to touch the borders of our need. Boys—our American boys, the majority of them—do not wish to go off in a corner by themselves and be trained. They like to be part of the crowd. They don't wish to be counted different. Their parents resent the idea of segregation just as much as the youngsters do.

From the public standpoint, there's a second big reason in the matter of economy. You see, we have the boys in the high schools. The time has passed when we can offer them just academic work. We have to have shops equipped for vocation finding courses and for pre-engineering training. The introduction of vocational work simply means better organized courses. If this same work, however, were to be offered by the city outside of the high school, it would mean the maintenance of two sets of shops and two sets of teachers. When things grow too expensive, we sacrifice quality. A city could not afford two A plus sets of equipment and teachers, so one or the other of the sets would be almost sure to be deficient.

There's another advantage of the high school apparent to teachers. If a sheet metal worker in a strictly vocational school hasn't enough pupils to take all his time, either he is called upon to teach something he knows only partially, or the city pays for unused time. If he has spare time in high school vocational work, he can teach prevocational or vocation finding classes still in his exact line. So, the advantage as to possibilities of quality remains with the large school.

There's also a development to the teacher in the high school arrangement. We had supposed that the strictly industrial instructors and the teachers of related drawing and academic subjects might clash. It works out that they are of the greatest mutual benefit. The academic men become more practical and vital, the shop men more liberal in their thinking.

It seems, then, to us that the high school is a natural place to develop vocational work on a large scale; because, it is possible having the boys; it is economical since we have to maintain shops of various kinds anyway; it is of advantage to the teachers. But, when it comes to working out these courses, do they seem to

be a part of, or merely an addition to, our high school work? The answer to that question brings me to the beauty of the plan from an administrative point of view. I refer to the way these courses grow out of and into the other courses, the whole high school becoming alive and able to function.

It is trite to say that the one thing which a high school is meant to do is to start boys and girls on a training for their life work. In this connection, we have had a great deal of well-meant talk about vocational guidance. We have been told that in order to start training for one's life work, the first thing is to know what that work is to be. That sounds well, but it is a mistake. A long time ago a master teacher told us, "He that doeth My Will shall know of the Doctrine;" i.e., to say, the knowing comes after doing, not before. A boy comes to high school. He knows in general that he likes constructive work. He has had a little taste of making furniture and likes it. He starts in on the building trades. He takes the drawing, the shop, the mathematics, and of course, related English work. There begin to open up before him fields of the furniture designer, of the wood finisher, of the lumber dealer, of the architect, of the draftsman, of the contracting builder. As he progresses, he begins to choose. A step at a time he becomes more and more specialized. He likes the design. He starts out on an architectural course. He sees he needs a long training in mathematics and plunges into it with a vengenance which utterly astounds the mathematics teacher who had thought him bright enough but lazy.

Or, perhaps after all he finds that he did not care for construction. He liked it because it was work with his hands. He retraces and starts out in the mechanical line and finds his greatest happiness. He may go on through high school and half way through a technical college before he decides in detail what he will do. All the time he is training for it and narrowing down his choices. Perhaps a boy coming to high school has an idea he wishes to go into business. He starts in the commercial work, and the sifting process goes on.

Have you ever watched a huge rock screen and seen the stones whirled round and round until one finds a hole its size and goes straight through only to land on the next finer screen, where the process is repeated, until finally every pebble has been sifted and sorted and has found a place among its kind? That is vocation

finding and training coupled together. And have you noticed how these stones polish each other in the process?

Looking at the vocational work still from an administrative standpoint, how shall we meet, first, State Board rulings regarding commissioned and accredited high schools; and, second, college entrance requirements? Now, as to State Board rules: In our own state, Indiana, in 1918, our State Board so liberalized its high school requirements that a high school pupil is permitted to take as much as fifty per cent of his high school work from a specialized curriculum. As this is the exact amount of productive work prescribed by the Federal Board for an all-day vocational course, the development of the comprehensive high school including vocational education is with us clearly feasible and generously encouraged. We believe the feeling in the North Central States is such that similar rulings may soon be expected where not already enacted.

As to college entrance, some of the eastern institutions will continue to require a large amount of specialized foreign language, and will so specify entrance requirements that there is no room for electives. A conference of one of the eastern states was called by the State Superintendent of Public Instruction to consider the possibility of having four units of free electives. One of the time-honored institutions of that state would not even send a representative to such a conference. We can only think of these colleges as highly specialized institutions. Our boys and girls should be allowed to prepare for one of them in case it is desired. Our academic courses offer full opportunity. There is no reason at all why our general curriculum should be hampered by their specifications. If a highly endowed institution wishes to be exclusive, it should by all means be accorded the privilege.

But, our great state universities and many other colleges and universities both east and west have the vision of serving those who come with purpose. They are broadening as to specific requirements, and deepening as to quality of work. That is as it should be. In this connection, I should like to refer to Purdue University, the state technical institution of Indiana. Dr. Stone, the President, has just sent out a new entrance requirement circular. In this they omit foreign language, leaving that to the field of the college. They extend the scope of science requirements to include physics, chemistry, botany, and zoology.

As general electives, they accept as much as five units of vocational work carried on as pre-vocational, or as approved vocational. This is just one example. A boy who wishes to continue his training is no longer handicapped by the fact that he has worked to some definite purpose of his own choosing.

DISCUSSION

CLARENCE D. KINGSLEY
State Supervisor of High Schools for Massachusetts

Recently a State Director of Vocational Education said to me: "I do not care whether vocational education is offered in a specialized school or in a comprehensive high school, provided that it is effective." This statement represents the attitude of many directors of vocational education today. In the few minutes at my disposal I want to urge the importance of placing vocational education in comprehensive high schools rather than in separate vocational schools.

At the outset may I clear away various misconceptions as to comprehensive high schools. First, a school is not a building. A building may contain two schools, each under its own principal. On the other hand, a school may occupy several buildings. An educational institution must be defined not in terms of roofage, but in terms of administration and aim. The specialized school generally aims to promote some particular type of education. The true comprehensive high school aims to give every boy and girl of high-school age in the contributing area that type of education best adapted to meet his needs. This statement contemplates the admission of over-age pupils who traditionally were held back in the elementary school until they became discouraged and disheartened.

Secondly, some say that vocational education may be spoiled if placed in a comprehensive school because of requirements for graduation inconsistent with vocational education. My reply is that a true comprehensive high school must encourage every type of education that meets the needs of young people. It must adapt every requirement to the needs of every group.

Some say that placing vocational education in a comprehensive high school necessitates shortening the school day for vocational education. Surely the notion that the school day for all students must begin and close at the same time is foreign to the comprehensive high school.

Some say that in a large city the adoption of the comprehensive school necessitates duplication in every high school of every curriculum offered in any high school. This is unnecessary. Any curriculum that is new or is in only slight demand may well be placed in one comprehensive school. As the demand increases that curriculum should be extended to other schools to make it accessible to an increasing number of students.

Finally, they say that some principals are not sympathetic with vocational education. Have we any right to build our educational institutions in accordance with personal idiosyncrasies? We need the courage of our convictions. If a principal is not sufficiently broad to welcome vocational education he is not sufficiently broad to head any school, even of the classical type. Some other field should be found for him.

Passing from the misconceptions and objections frequently raised, I desire to give seven reasons why vocational education ought to be placed in the comprehensive high school.

(1) Wise choice and rechoice of education and vocation. Under specialized schools young people often choose the school to which their friends go, or the one that is nearest, or has the best athletics, or the best alleged social standing. In the comprehensive high school these disturbing factors are eliminated. After students enter a specialized school and find that they made an unwise choice, they hesitate to transfer to another school because of the attachments formed, and the more effective the school the stronger become these attachments. In the comprehensive high school they have an opportunity to discover work better adapted to their needs and a change in curriculum is encouraged.

(2) Accessibility. In a city large enough to have several high schools the only way in which each important type of education can be made thoroughly accessible is to place it in as many district high schools as feasible.

(3) Professional growth of teachers. For eight years I taught in a school offering little commercial work and felt the lack of contact with commercial education. I wanted to see it

at close range so that I might advise pupils more intelligently. Every high school teacher suffers more or less as an educator, because he must, of necessity, be a specialist.

(4) Health. The large comprehensive high school can organize health education more effectively than can the smaller specialized school. The desirable facilities for physical education are almost unlimited.

(5) Worthy use of leisure. A large faculty can direct many clubs and organizations appealing to widely diversified interests of students and preparing for the worthy use of leisure. Even though vocational students may not have much time to devote to such activities, nevertheless this objective of education is so important that the time available should be utilized most effectively.

(6) Democracy. The greater the differentiation in curriculums the more important becomes the opportunity for pupils to mingle socially and to share in the assembly exercises and in the extra classroom activities in order that all may secure those common interests and common ideals absolutely necessary if our democracy is to exist and be strong.

(7) Adaptability. You and I may decide that certain types of education serve the needs of today, but we cannot foretell what changes are ahead as a result of further experience, of experimentation, and of changes in society. The existence of the comprehensive high school is not dependent upon the perpetuation of any particular type of education. Consequently, administrators, teachers, and patrons of a comprehensive school are not so strongly tempted to oppose changes in education. Furthermore, the number of students pursuing the various curriculums varies from time to time. These changes do not necessitate such extensive changes in building accommodations in the comprehensive high school, for as the pupils in one curriculum increase and those in another decrease more rooms may be devoted to the curriculum that is increasing.

In conclusion, the longer I study this problem the more firmly am I convinced that the objections to the comprehensive high school are incidental. The longer I study the functions of vocational education, the characteristics of young people, and the needs of society, the greater seems the necessity for comprehensive high schools.

JOHN CALLAHAN
State Director of Vocational Education, Wisconsin.

I plead guilty to being one of the doubting Thomases. I have yet to see a comprehensive high school according to the definition given here this afternoon. Though I have seen several on the way. I am not particular as to where this vocational training is given, as long as it is given somewhere.

The statement was made that we have the boys in the high schools and therefore that is the place to give them vocational training. In my state there are about 52,000 boys and girls enrolled in high school and there are more than twice that number in the same age group who are not enrolled in any full time school. These are the people for whom the State Board of Vocational Education and the local boards in Wisconsin are to provide training. They have been forgotten or neglected in the past, and as far as my influence goes this money furnished the State Board will be used first for them. We will use our influence to get them to remain longer in the full time schools. Many more of them are doing this, as is indicated by the growth of the high schools, but this doesn't seem to lessen the need for nor the value of the part-time schools. They are developing rapidly in Wisconsin, and there is no row between them and the regular full time schools; at least, I am not conscious of any.

There are many strong people working on the development of vocational training in high schools. I think we should leave that problem to them, being willing to lend a hand whenever we are called upon. They should be willing to reciprocate. There is work enough for all. As for the opposition of some good school people, I am inclined to think the previous speaker is right when he says we may need a few first class funerals before the work can move ahead as it should.

THE TEACHING OF SOCIAL SCIENCE IN HIGH AND TRADE SCHOOLS

Report of Special Committee by the Chairman

RUTH M. WEEKS
Kansas City Junior College, Kansas City, Mo.

In planning any course of study, a definite group of students must be kept in view; therefore, the Committee on Social Science has fixed upon the vocational continuation students in part-time schools subsidized under the Smith-Hughes Act as the group likely to prove at once the largest and most puzzling. The time which such students will spend in the continuation school is uncertain; the number of hours they will have in school is very limited; and the division of this time between shopwork, related technical studies, and academic instruction is strictly outlined in the Act. The committee estimates that of the time allotted to academic subjects, one hour per week is the most that can be devoted to social science. Obviously, these severe time limitations must be clearly recognized, for only harm can come from attempting the impossible; and if the ideals of the committee seem relatively low as compared with those sometimes expressed by educators, it is because these limitations have been constantly considered.

The purpose of vocational training is to prepare the child for pursuing his chosen occupation to the advantage of himself, his employer, and society; and for participating intelligently in civic affairs. The specific aim of the shopwork is to teach the correct use and care of the tools of a given trade; to impart a knowledge of its materials and processes; to develop a reasonable degree of skill in the use of these tools and in the performance of these processes; and to impart such knowledge as comes through the making and interpretation of drawings and specifications common to the trade. The aim of related technical instruction is to develop the ability to think more intelligently and more scientifically regarding the technical processes employed in the particular industry, and to inculcate general industrial intelligence. The purpose of the so-called academic courses is intelligent citizenship and some degree of personal

culture. The committee assumes that mathematics, physics, chemistry, the study of materials, and mechanical drawing will probably be the related technical subjects covered, and that reading, writing, and social science will form the academic course.

In view of all these facts, the committee submits the following condensed outline of thirty-three lessons covering those basic essentials of history, economics and sociology which it deems possible to present during a year's time in one hour a week. The topics suggested in this outline may be handled with more or less detail; they can be thus expanded and elaborated to extend over two years instead of one, or to meet the needs of high school or trade school as well as continuation students.

It was the intention of the committee to submit also several sample lessons worked out in detail, in order to suggest to vocational instructors new to social science teaching, how to present complex subjects in a simple practical manner. But the serious illness of two members of the committee has prevented for the present the completion of this illustrative matter.

Lessons in Social Science

Lesson 1. Getting a Job.

1. Why boys and girls should seek jobs where they can learn and advance, even though the initial wage is low.
2. Statistics as to wages in various industries.
3. Opportunities to rise in large corporations and how they are taken advantage of.
4. Employment agencies, good and bad.

Lesson 2.—Large Scale Production.

1. Why big establishments are driving out little ones and therefore offer better possibilities for the future.
2. Combinations and monopolies.
3. Natural monopolies and efficiency.
4. Government control and ownership.

Lesson 3.—Evolution of the Modern Industrial Organization.

1. Hunting economy: the Indian.
2. Agricultural economy, the feudal system, and modern agriculture.
3. Rise of towns, and trade and craft associations.
4. The domestic system.
5. The factory system.

Bring out the increasing prosperity of labor plus its increased dependence, and the increased chance of general suffering if all parts of society do not function co-operatively. Illustrate by a general strike affecting a necessity like coal. Either capital, labor, or public, can precipitate a crisis.

Lesson 4.—Division of Labor, National and International.

1. Geographical, with regard to production of raw materials, manufacture, and distribution. Start with a flood or other calamity which isolates a district.
2. Specialization of processes, by businesses and by jobs. Illustrate by the specialized factory, by the specialized machine, by the Ford car and the standard part, by a strike of some one kind of workers which ties up an industry.
3. Advantages and dangers of minute specialization.

Lesson 5.—The Department Store.

1. Number of departments and employees.
2. Overhead charges.
3. Buying the goods.
4. Source of the goods sold in a single store: raw materials, place of manufacture, through how many hands passed.

Lesson 6.—Importance of Capital.

1. Capital and labor in one person: the farmer.
2. How a corporation is organized and gets its capital: stocks and bonds, reinvestment of profits.
3. Watered stock.
4. Rewards to capital: profits and dividends, rent, interest.

Lesson 7.—Credit.

1. Importance to a business of having good credit.
2. How a business establishes good credit: not only pays its debts but builds up a reserve fund, depreciation account, etc., i.e., does not pay in dividends all its profits but reinvests in plant.
3. Why working men do not have good credit: they spend all they get.

Lesson 8.—Money and Banks.

1. What money is, and history of exchange.
2. How it is issued.
3. How banks are operated.
4. How banks create wealth.

Lesson 9.—Contracts.

1. Importance in business, government, and ordinary life.
2. Common kinds into which all men enter: marriage, partnership, contracts to fill orders, contracts to do work (wage contracts), contracts to buy or sell land, etc.

3. Sacredness of the contract; show loss of sympathy for labor when unions break contracts.
4. Definition of a contract.

Lesson 10.—Economic Organizations.

1. Business men's associations and corporations, organized for profit, which may come in two ways: increasing efficiency and output, or raising prices and keeping down wages.
2. Organizations of labor, designed to raise wages, shorten hours and regulate discipline, but not to increase efficiency and output.
3. Special aims and methods of the trade unionist, syndicalist, Bolshevist, I. W. W., socialist, anarchist. Learn to discriminate.
4. Labor warfare and its results; the strike, the lockout.
5. Methods of cooperation between capital and labor; theory of collective bargaining.

Lesson 11.—How to Run a Factory Successfully.

1. Visit the largest available industrial plant in the neighborhood.
2. Organization by departments; sub-divisions of work in each department; officials and their duties; employment managers; welfare work; shop committees in detail.
3. Dealings with the public and the customer.

Lesson 12.—Prices.

1. Importance of prices.
2. How prices are determined.
3. Periods when prices have risen.
4. Suggested causes for present high cost of living: inflation of money and credit, inadequate production, extravagance, faulty distribution, monopoly and manipulation of market, competition of foreign markets.
5. Remedies proposed: reduce volume of credit by payment of debts, restrict exports, improve transportation and regulate middlemen, control combinations, increase production by
   a. Economic combinations in corporations.
   b. Scientific management.
   c. Education of labor, general and vocational.
   d. Sympathetic and democratic handling of labor in factories.
   e. Reducing labor turnover.
   f. Increased individual effort of workers.
   g. Cooperation in buying and selling, especially in agricultural districts.
   h. Public ownership of public utilities.

Lesson 13.—Land Ownership and Use.

1. History of idea.
2. Criticisms of private ownership.
3. Advantages to society and individual of private ownership.
4. Land transfers, titles, deeds, mortgages, etc.
5. Development of land.
    a. In cities: problems of rent, taxes, improvements and changing values.
    b. On farms: evils of mortgages, tenancy, etc.
6. Public lands and their uses.

Lesson 14.—Conservation of Resources.

1. Natural: forests, minerals, water, soil, air and smoke prevention, agricultural products and pest fighting.
2. Human: Health (industrial hygiene, social, personal), safety first, morals, cultural assets.

Lesson 15.—Races in the United States.

1. Where they came from, why and how.
2. Working relations between white, black, red and yellow races in the United States, special problems.

Lesson 16.—Stages in Western Civilization.

1. Origin of the white race.
2. Its branches and the order of their migrations.
3. Ancient Greek culture and ideals, history of Greece down through revolution to present Greek immigration to U. S.
4. Rome rule as above.
5. The Teutonic invasions and the Middle Ages.
6. Development of the western nations, Spain, France, England, Germany and Russia; their emigrants to U. S.
7. Period of territorial struggle and colonization; effects in North and South America and India.
8. Period of commercial rivalry.

Lesson 17.—Democratic Landmarks in American History and their Parallels in other Countries.

1. Revolution and constitution: right of self government.
2. 1812: freedom of the seas.
3. The Monroe Doctrine: the self determination of smaller nations.
4. Abolition of slavery.
5. Spanish War: end of idea of colonial exploitation.
6. World war: condemnation of selfish nationalism.
7. Labor legislation and Supreme Court decision: right to "life" social welfare the test of legality.
8. Universal suffrage and universal education.

Lesson 18.—Majority Rule.

1. Start with electing a captain of a football team.
2. What majority rule implies as to minority conduct.
3. Advantages of majority rule and evils of minority rule, either by aristocracy or proletariat, etc.
4. Dangers of majority rule: freedom of speech, etc.
5. Methods by which other countries have attempted to mitigate these defects:
   a. Proportional representation: see Belgium.
   b. Parliamentary systems in countries like Great Britain where minority has a better chance to become a majority quickly.

Lesson 19.—Representative Government.

1. Why necessary?
2. How our representatives are elected in the U. S. and who they are (city, state and federal); sacredness of the ballot.
3. What are the powers we delegate to our representatives which vitally affect us in daily life?
4. Relation of political parties to representative government.
   Start with making plans for a circus or picnic.
   What can be decided by vote? What must be left to committees?
   Conduct class in parliamentary form to give practice in drafting, introducing, debating and passing laws.

Lesson 20.—Structure of American Government.

1. Ideas of divided functions (legislative, executive, judicial). Illustrate from the case of a baseball team, captain and umpire. Apply to modern issues between legislative, executive and courts.
2. Fixed terms: advantages and disadvantages as compared with countries which have indefinite terms. Continue to use umpire illustration.

Lesson 21.—Administrative Efficiency in Government.

1. What government should do. Start with failure to carry away garbage in a great city and show intimate relation of government to life and what functions government must exercise.
2. Failures in American administrative efficiency; results.
3. How to secure efficiency:
   a. Legislation confined to general principles, details left to specialized boards of administration.
   b. Reduction in number of elective offices, selection of experts, city manager and commission government, etc.
   c. Vigilance in electing representatives with appointive power.
   d. Civil service.
   e. Make administration a career that will draw leaders.

Lesson 22.—Review of the Work of the Principal Administrative Boards Affecting a Locality.

Such as, public utility commission, industrial commission, tax commission, health department, agriculture department, marketing department, dairy and food inspection, civil service, state and local boards of education, regents of colleges, highway commission, county court, police commission, etc.

Lesson 23.—Democratic Control of Economic Forces.

Legislation such as anti-trust laws, interstate commerce control, laws relating to hours and conditions of work, child labor laws, minimum wage laws, temporary regulation of prices during the war, workingmen's compensation acts, restrictions on dangerous trades (the phosphate act).

Lesson 24.—Nature of Modern Legislation.

Make a study of the principal bills now up before city council, state legislature and national congress to show that legislation is more and more social and industrial rather than political and militaristic. Visit city council.

Lesson 25.—Taxes and Their Purpose.

1. What is done with taxes?
2. How are they levied—federal, state, city?
3. Reasons for each type of tax: general property, personal, land, income, corporation, consumption (tariff and internal revenue).
4. Defects in our taxing system.
5. Proposed remedies.
6. Duty of the citizen with regard to taxation.

Lesson 26.—Spending our Money.

1. The idea and the method of the family budget; notion of items that should enter and of proportion in expenditure, a living wage, wages in the U. S., saving and thrift.
2. The municipal budget; how money is now spent; a scientific budget.
3. National budgets; compare our American method with that of Great Britain.

Lesson 27.—American Courts, Court Procedure and Ideals.

1. Purposes: settle disputes, determine punishments of law breakers: new ideas of punishment.
2. Existing courts and their powers and work.
3. Origin and development from English system of appointment to American idea of election, responsibility and recall.
4. Defects in legal machinery.
5. Attempts to remedy by specialization of judicial work; juvenile, domestic relations, industrial relations, etc.

6. Other reforms for expediting justice, modernizing law and opening courts to poor.

Lesson 28.—Fundamental Biological Concepts.
1. The biologic cell.
2. The idea of evolution.
3. Definition of heredity and defective classes.

Lesson 29.—The Idea of the Family.
1. Origin and history of the family.
2. Family instinct in higher animals.
3. Types of human family.
4. Advantages of purely monogamous type.

Lesson 30.—Racial Responsibility.
1. Personal hygiene.
2. Sex life.
3. Love and marriage.
4. Preparation for parenthood.

Lesson 31.—Insurance.
1. Kinds: unemployment, accident, sickness, old age (general and special classes), life, investment policies, fire, burglar and hurricane.
2. Operation of an insurance company and how premiums are fixed. The state as an insurer.

Lesson 32.—The Germ Theory of Disease.
1. Start from an epidemic, an impure water supply, a man spitting out of the car window, or going to work when ill.
2. Description of the nature of various disease germs, their communication and methods of isolation and immunization.
3. Develop social responsibility for health of others and remove fear by knowledge.

Lesson 33.—How to Have a Good Time.
1. Kinds of play: physical and mental, active and passive.
2. Notions of fair play.
3. The social view point in recreation.

   Start with a boy arrested for playing ball in the street and breaking a window; use Hallowe'en pranks—clever versus destructive.

Respectfully submitted,

JOHN R. COMMONS,
FRANK M. LEAVITT,
RUTH MARY WEEKS, *Chairman.*

SOCIALIZING THE REASON

RUTH MARY WEEKS

(Digest)

Thursday afternoon, I spoke to some of you on socializing the instincts, on the necessity of making social behavior the first subconscious reaction of men to difficult social situations. But experience teaches us that the instincts need reinforcement from the conscious reason. Back of habits must lie knowledge; and a reserve of information must be ready for the emergency to which old habits prove inadequate. To guide his steps through the intricate mazes of modern life, the student must have some information as to the actual organization of society, some historical perspective, and some understanding of the laws of human development by which real progress can be made. . . .

Some years ago, I spoke before the Vocational Education Association of the Middle West concerning the inability of labor to participate intelligently in industrial management; and the need for trained understanding of business organization, since trade unionism and government ownership call upon labor, in spite of its ignorance, to exercise industrial control. The world has since witnessed the attempt of an ignorant proletariat to direct Russian agriculture, commerce and manufacture; and we have noted the striking failure of industry to educate the worker as to the importance of capital, the value of expert knowledge, the necessity of managerial control, the elements in the cost of production, the laws of supply and demand, the determination of prices, the sources of raw material or the marketing of finished products. Imprisoned in the tiny industrial or agricultural compartment which he occupied, the Russian worker thought its walls inclosed the world; and of the immense complexity of modern business, and of the public's dependence upon the friendly cooperation between capital and labor for the necessities of life, he had no dimmest glimpse. And the spread of syndicalism in America, the unrest which seethes in usually sober and conservative labor circles, proves that the Russian's naive ignorance is first cousin to the American's half knowledge. Therefore, in the Social Science Committee's report you will see that in Lessons 1 to 14, these basic points have been carefully explained, since

they are points an understanding of which is essential to industrial security, but with which apparently industry alone is unable to acquaint its workers. . . .

In so brief a survey of the actual structure of the industrial organization, we can not hope to give the student a thorough understanding of these points, but we shall at least have given him a clear idea that the whole thing is much more complex than he had dreamed, and that industrial difficulties involve much more than the personal meanness of the boss.

With Lesson 15, we approach the problem of citizenship. Lessons 18, 19 and 20 are an attempt to present simply (illustrating from some common situations within the student's experience), the basic principles of American Government. The fault with most teaching of civics, is that we have presented to the child a lifeless outline of the machinery of government, instead of a living exposition of its functions and basic principles. The machinery may change; indeed, I hope it will. But majority rule, representative government and divided functions we shall always have, and it is these governmental ideas and not their temporary imperfect mechanical embodiments, which we need to teach our pupils. No one will be a Bolshevist who has got a grip on the idea of majority rule; he will spend his energies fighting the election crooks. Lessons 21 to 24 are intended to arouse the voter to the nature of modern government, the need of intelligent, honest officials, the trend of progressive legislation, standard conditions to which workers are entitled, and the possibility of orderly legal redress for industrial grievances.

Lessons 28 to 33 deal particularly with the social relationships, and the aim of the lessons is to bring into line with reason and science those parts of life which are now governed largely by haphazard whim. . . .

Far better than specific sex instruction, is arousing a sense of racial responsibility through knowledge of the processes of human evolution. . . . Lesson 32 seems to me highly essential since modern medicine and municipal sanitation is so largely based on this conception; and lesson 33 is designed to direct students toward creative rather than passive amusements and toward social rather than antisocial activities. Besides social information, we have attempted, however inadequately, to weave into the lesson plans which you have in hand, the rudiments of social imagination, of historical perspective, and of some understanding

of the laws of human development by which real progress can be made. The merest glimpse down any of these avenues is of inestimable value to the industrial student. The social imagination must be widened to include other economic classes than our own, and other stages than our own in the advance of civilization. It is a lack of social imagination which produces class conflict. It is a lack of historical perspective which produces the resistance of the capitalist to industrial change, and the frenzy of the radical at the slowness of industrial progress. . . .

A casual glance at these lesson outlines may provoke the thought that in the short space of one hour per week for forty weeks it is almost impertinent to essay the discussion of topics to anyone of which a college year might be devoted. The attempt seems, I grant, presumptuous: yet the treatment of the material contemplated by the committee is very elementary. Perhaps not all the points indicated under each lesson can be developed; the instructor can select those items on which he is best informed and present them in detail. These lessons aim, moreover, merely to sketch the complex interdependence of modern life and not fully to explain and analyze its elements. Economic and social science have revealed certain indubitable facts about the social and industrial organization which will vitally affect the worker's life. To present these concrete results of scientific study in the simplest terms and without theory or dogma is the purpose of such a social science course for vocational pupils.

In this little outline, I fear that the dream for which the social science committee worked has been but imperfectly embodied. It lies with you who have also seen the vision, to work over these fragmentary lessons into a course in social science which will set in the heart of every vocational student the same hope of good, together with the social will and power to accomplish it.

DISCUSSION

FRANK M. LEAVITT
Associate Superintendent of Public Schools, Pittsburgh, Pa.

In discussing Miss Weeks' presentation of the committee's report, I would call attention to the fact that we are likely to lose sight of the children for whom the social science courses are

primarily planned. Mr. Cooley showed us that out of 3,000 jobs, held by certain continuation school pupils in Milwaukee, there were only 300 that were worth training for.

It has been a little discouraging to hear the following question raised so often during these meetings: "Is it worth while to try to give vocational training to the people who are going into the other 2,700 jobs?" The primary purpose of social science instruction is to so educate the 2,700 that they will become good American citizens and conditionally happy individuals although they do not succeed in getting the 300 choice positions. The 2,700 jobs will be filled by somebody and it is proposed that social science instruction shall remedy the damaging effect of these low grade jobs as effectually as possible.

While I heartily agree with nearly everything that Miss Weeks has said, I feel that one statement of hers would have to be qualified before I could give it my approval. She said that if she had to choose, out of all the subjects offered in our schools, one subject which should be required in addition to the three R's, she would select history as the one essential subject.

Personally I believe that it would be unwise to designate history as the one essential addition. Rather it would be better to require a general social science. We ought to do in this field what we have done or are doing in the field of natural science and in the field of mathematics. In the former we have come to regard the general science course as the only science course wholly appropriate for high school children. While less progress has been made in the field of mathematics, there is a growing tendency to substitute general mathematics for the traditional algebra, geometry and trigonometry in the modern American high school.

If history, rather than general social science, be made the required subject, there is grave danger that our teachers will fall back on our history text books and I would raise the question as to whether there is a single text that will serve the high purpose which we have in mind when we urge the inclusion of social science as one of the fundamentally important subjects for all young people to study in our public schools.

There is grave danger, as I have said, that we shall follow closely the tradition of history instruction and lose sight of the necessary economics and sociology that must be combined with it if history is to serve the purpose which Miss Weeks has de-

scribed in presenting the report. I believe we can not make it too clear that what we desire and recommend is a **general** social science course so simplified that a normal fifteen-year old child can understand it and so fundamental that it will be of unmistakable value to all.

SECTION VI

FUTURE PROBLEMS OF NATIONAL AND STATE ADMINISTRATION OF VOCATIONAL EDUCATION

A FORECAST FOR VOCATIONAL EDUCATION

C. A. PROSSER
Director of Dunwoody Industrial Institute, Minneapolis, Minnesota

In my Methodist days we sang over and over again from the hymn, "Watchman, Tell Us of the Night, What Its Signs of Glory Are!" Though I have perhaps forgotten the tune, I still remember the words. Wonderful indeed has been the progress made in vocational education during the last decade. This progress has been so rapid that we dare not camp at any bivouac long enough to celebrate a victory while there are before us new and pressing forward steps needing to be taken.

One of the immediate future problems is the re-education of those injured during their employment. A bill commonly known as the Smith-Bankhead Act is now before Congress. Its passage will complete the cycle of Federal legislation on the subject of vocational training. The Vocational Education Act, commonly known as the Smith-Hughes Act, provides grants to the states for the vocational education of the normal civilian. The Educational Rehabilitation Act, commonly known as the Smith-Sears Act, provides for the retraining of those injured or diseased in war. The Smith-Bankhead Act or its equivalent will provide through grants to the states on the same lines as the Smith-Hughes Act for the rehabilitation of the victims of industry.

Assuming the passage of the Act by the Congress, there are a number of things which need to be safeguarded in the state legislation on the subject.

1. **State funds are needed to supplement the national fund.**—Only as the state as well as the national government becomes an investor in the enterprise will it be able to proceed with confidence

in putting the work into effect and standardizing courses of study and methods of instruction.

This was true in the case of the Vocational Education Act. It is doubly true in the re-education of disabled civilians, since, in my opinion, most of the work will be done under direct state auspices rather than through local communities.

2. **Flexibility in the administration of the Act must be insured.** The rehabilitation of disabled men is the most difficult problem in vocational education. The numbers are few, compared with the number of students in regular vocational education. The injured men differ from one another in every respect, including age, previous schooling, previous experience and occupation, ability, and ambition. They are not only handicapped as a result of their disability but these handicaps differ widely in kind and extent.

The problem of the adaptation of these men through training to the old or the new occupation is an individual problem, presenting the widest possible range of conditions and difficulties. These cannot be met unless the state legislation is drawn in such language as to leave the state board of administration free to adapt its policies and methods to a widely varying and ever-changing situation.

3. **Simplicity of administration should in my opinion be gained by placing the administrative responsibility for the work in the hands of the same administrative board as is now charged with the administration within the state of Federal grants for regular vocational education.**

4. **Cooperation with different agencies will be necessary in order to set up a comprehensive plan for the reconstruction of the man.**—He must be reached before he leaves the hospital. Hospitals must be induced to cooperate by the introduction of occupational therapy and by the improvement of their work in industrial surgery. Vocational advisement must be followed by intelligent placement for training in the school or on the job. Where a question exists as to the proper course for the man to pursue, his first assignment for training should be frankly recognized as a try-out. Those in charge of the work must be free to shift him if necessary from one course to another until the thing has been found which is most suitable to him.

Management and labor must be interested in the work. The former must in some way be induced to cooperate so as to

make employment for these men educative in the best sense of the word. Close cooperation with the department of labor of the state is vitally essential. In those states where compensation commissions exist, effective working relations must be established between this commission at whose hands the man receives the award for his disability, the State Board for vocational education responsible for his training, and the State Department of Labor, in charge of the machinery for the placing of men in employment.

5. **Provision must be made for the proper support of the disabled man while in training.**—The soldier disabled in war is fully supported by the Government during his re-education, this support being paid not in a lump sum stipend but in monthly allotments.

In those states where compensation acts have not been passed, the disabled civilian must rely upon the uncertainties of the courts of justice in which he sues for damages under the Employer's Liability Act. In those states where compensation commissions exist, a considerable portion of the man's compensation is expended before he leaves the hospital, certainly before he is able either to go to work or receive instruction through school or through employment.

Experience already goes to show in those states where legislation for disabled civilians has already been adopted in advance of the act of the Congress that many men refuse to accept the training offered because of the lack of faith in the venture. They hesitate to spend the stipend which they have received from the state for their support while in training because they fear that when the training is ended their compensation award will be exhausted and they will be facing employment without any reserve funds and handicapped by their injury.

In my opinion, it will be necessary to arrange for some special support for disabled civilians while in training. It would, of course, be inadvisable and impossible to add this support to the original compensation award, since many men do not need the training, others will not take it, and, in the case of those who do take it, the length of the period of instruction not only varies but is uncertain at the time the compensation award is made.

If provision is made for the support of men in training, it ought to be in the form of a special award granted only to those who undertake instruction. This award should be paid separately. There have been a number of ways proposed to meet the problem.

One is to make an award of a nominal sum per week, say ten to fifteen dollars, payable only to those who take the training, and make it at the time compensation is given, the payments for the support of the man to be charged against the employer or the insuring company only as and to the extent to which this special support is earned by the man. It is obvious that in such a case it will be necessary to put in the legislation a very definite limitation on the number of weeks or months for which this special support for training would be operative.

Another, and, to my mind, a far more promising method, is one which the State of New York is at this time endeavoring to secure by legislation.

Where men without dependents die as the result of accident, casualty companies operating under the compensation law are required to pay into the hands of the state treasurer a very modest sum which does not exceed $100. This is a very common method in states having compensation laws. Last year 552 men were killed in manufacturing establishments of the state of New York who died without known dependents. For these, companies paid into the hands of the state treasurer a total of $55,200. By increasing this amount to $1,000 a total of $552,000 would be received by the state treasurer. Legislation authorizing the use of this money for the support of disabled civilians while in training would provide an ample fund for the purpose.

This is a thing which in proportion to their population could be done by other states in the Union, operating under compensation acts. To my mind, this is justice to the state, to society, and to the disabled men. Nor do I think such a program will be resisted by the casualty companies.

The second important forward step is that of additional Federal appropriation for home economics training. When the President's Commission on Industrial and Agricultural Education made its report in 1919, it recommended against the making of grants to the states for stimulating home economics training but provided in its plan for the use of Federal money by the states for the training of teachers of home economics.

During the closing hours of the debate on the Vocational Education Act, the phrase "home economics" was inserted in the House by a House amendment in every place in the measure where the expression "trade and industrial subjects" appeared,

so that the phrase read "trade, home economics, and industrial subjects." At the same time the House amendment provided that a total of not more than 20 per cent of the fund for industrial education should be used for the salaries of teachers of home economics.

This gave to the home economics training only a small sum, equal to one dollar out of every five appropriated for industrial education. At the same time, however, it sets up standards for home economics education which were drawn for industrial trade education and are in practice found not to be adapted to home economics policies, standards, and methods. As a result, the home economics work has been very greatly handicapped by the lack of adequate funds for the administration of the measure by the Federal Board for Vocational Education and for the support of courses of instruction operated by the States by being required to conform to standards and methods, which, while excellently adapted to industrial and trade training, do not meet the needs, in many sections of the country at least, of training for the home.

The bill now before Congress provides additional money to insure adequate contact by the Federal Board for Vocational Education with the states in their mutual cooperation for home economics training, larger funds for the encouragement of the work in the various commonwealths, and minimum standards adapted to the conditions of school training in the subject. Its passage will very greatly further the success of the movement.

The movement for compulsory part-time education.—At least twenty states have at the time of writing of this statement passed laws requiring the attendance of wage workers on part-time classes for a period of not less than four nor more than eight hours per week. In those states where compulsory full-time education ends at fourteen, the compulsory education of wage workers usually covers the period from fourteen to sixteen. Where states have lifted their compulsory full-time education requirements to sixteen years, the part-time law obligates employed persons to attend classes up to eighteen.

This movement is certain to extend until practically every state in the Union has enacted similar legislation. It may be well to point out here the principles upon which this compulsory legislation for the benefit of young wage workers rests: The state has come to regard citizenship and efficiency as so absolutely

necessary for all that it is ready by law to follow the child into his employment for the purpose of making it more educative. This is a measure of conservation of childhood, which, while it costs money today, represents deferred dividends in better men and women and a more intelligent and devoted citizenship for the future.

The right of the state to regulate the employment as well as the education of the youth is gradually being asserted. John Fisk's "period of infancy" for nurture and care, for the adjustment of the child to his environment is consciously being extended by the state in order that the youth may meet the requirements of a civilization whose demands are becoming increasingly complex. Conservation costs. How far we shall go in this movement depends upon how conscious society is of its need for the protection of youth and how willing it is at any given time to pay the cost.

The passage of this compulsory part-time legislation commits to the care of the schools hundreds of thousands of youths hitherto neglected and left to go their own ways. After all, we have very little experience to guide us in working with this problem. We need to look to Wisconsin for help in taking the initial steps. What is needed here is some way in which, either through Federal support or by private philanthropy, studies, investigations, and experiments may be carried on in order to get and disseminate information to all the states which they need in establishing and administrating part-time training, whether general, pre-vocational, or vocational in character.

Such a program to be carried out intelligently requires an analysis of occupations; the use of material taken from the industries as teaching content; the adaptation of methods to the interest, point of view, and the needs of the boys and girls who have left the regular schools to earn a livelihood. The National Society can do no greater work at the present time than to aid actively in the solution of these problems. Certainly the twenty states in the Union that are practically facing this problem for the first time would welcome such a service.

Vocational Education for those who have gone to work. The time will come in the next five years, if it has not already arrived, when the greater portion of Federal and State money for vocational education will be spent upon people between eighteen and twenty-six years of age. No one who reads the signs aright can close his eyes to this fact.

Do we believe in manual training? Of course we do! Do we believe in the benefits of the Smith-Hughes Act? Of course we do! Do we believe in the all-day industrial and trade school? Yes, whether carried on under public or private auspices. Do we believe that it constitutes any large solution of the problem of vocational training? None of us do, if we are honest with ourselves. How, then, is the solution of the problem to be accomplished? Through the after-training of those who have already entered upon employment.

Personally, I do not expect any extensive development of the day industrial and trade school but rather look to a modification of existing courses in regular day schools giving a training that might possibly be described as general vocational education. The great mass of the workers of this country are to have their needs met, are to be fitted for promotion and leadership, after they have entered upon employment.

The two institutions for this service are the evening school and the part-time school. The part-time school, giving trade extension work, is to be a matter of slow growth. We are still in the evening school state of the industrial education movement, and it constitutes today our largest and most effective weapon for promoting the training and efficiency of wage workers. Personally, I never have been able to understand why we Americans have neglected the evening school and by so doing have neglected the needs and the interests of millions of boys and girls and men and women.

Ultimately the part-time school, claiming a portion of the time of the young worker for the extension of his vocational skill and knowledge, will be the solution. When it is developed to the full, evening schools will become increasingly unnecessary. We shall have the evening school with us, however, as an indispensable device for the next quarter of a century, and it behooves all of us therefore to promote a type of evening industrial and trade school that will serve the interests of the great body of our wage workers during that period.

This means that the evening school should have decent quarters, proper lighting, adequate shop and class-room facilities, competent teachers equipped with approved trade experience, a wide variety of courses organized on the short unit basis, and methods of instruction, simple and direct, that will reach and hold the American wage worker.

The place of industry in the program.—Nothing is clearer than that the schools cannot without the aid of industry accomplish industrial and trade education for this nation. Even the work which they do directly cannot hope to succeed without the co-operation of employers and labor.

When one contemplates the vast cost of a scheme of industrial and trade education for the vast millions of employed persons, he realizes all too keenly that public funds, raised by ordinary methods of taxation at least, will not be sufficient to swing the program.

Aroused for the first time by the war to a keen sense of the importance and the feasibility of training, many establishments in this country have begun the task of training their own workers. It is altogether likely that in the year 1920 more money will be spent upon schemes of training supported by private employers than will be spent by the public upon direct industrial and trade education.

We will be foolish as schoolmen if we undertake to do this work without the help of industry or if we assume that vocational education is our particular province and field to the exclusion of industry. Not only do we need to co-operate in our own work with employers and labor but we need to keep in close contact with and encourage in every possible way the educational ventures and enterprises promoted, supported, and controlled by the industries themselves.

Industry itself has been training men after a fashion at their tasks. Industry needs to be and is rapidly reforming itself so as to make the foreman instructor as well as inspector. We are to have a better selection of men and a better assignment of them to occupations. Better induction into positions will be followed by better training. The up-grading of tasks will define lines of promotion. Instruction will prepare ambitious and promising men for the next step upward.

Sometimes this instruction will be an incident of the daily employment. Sometimes it will be carried on through the shop school. Sometimes it will be carried on through cooperation between the shop and the public or private schools of the community.

I am not a prophet but I believe that the day will come when, if necessary, industry will be taxed specially to provide the funds for an adequate scheme of industrial and trade training, when the youth entrusted to industry will be insured an educative

career during his beginning years in the shop, when the educational enterprises of manufacturing establishments will be subject to the inspection and approval of public agencies, when larger establishments will conduct their educational programs, and when the funds raised by the public will be sufficient to insure adequate cooperation with larger manufacturing establishments and provide full training for those engaged in smaller enterprises, and for the great mass of the wage workers of the country.

The place of the private school.—The private school can always experiment with freedom. It can never consummate on a large scale. Its largest service in the widening program of vocational training for the country is that of careful, persistent, earnest, bold experimentation. From this viewpoint, the opportunity of the private school is that of pioneer service, blazing new trails, uncovering new needs, developing new courses and new methods of training. In this sense the private school becomes a great human laboratory which, in addition to the large benefit conferred upon its students, makes new and permanent contributions to the effective promotion of sound vocational education.

Finally, let us never look upon the industrial and trade school as a permanent and static thing. Vocational education is in a process of flux and evolution. We who are working with the movement today constitute but the prelude to the swelling theme. It will require careful thought and service, bold experimentation, effective organization and method, cooperation between schoolmen and laymen, team-play between the shop and the school, and the elbow to elbow work of public school and private school, manual training and technical school, industrial school, college, and university, to bring our hopes and our dreams to fruition.

Here is a vista that stirs the blood, particularly when we remember that, after all, the common end of all those engaged in the movement is the opening of the way before sons of men so that they may express and realize themselves to the full. When this program has been achieved society will not only become more intelligent, more efficient, and more prosperous. The sons of men will understand each other. The labor of every man, up to the measure of his ambition and capacity will provide opportunities for a sufficient career. Unrest and strife will be succeeded by content and good feeling. "There will be greer branches on thresholds, and the workshop will become the altar of fraternity and equality."

SOME NATIONAL PROBLEMS

L. S. HAWKINS
Chief Division of Vocational Education, Federal Board for Vocational Education

This Society during the past fifteen years has recognized and discussed many, if not all, of the fundamental problems involved in securing for the Nation an operative program of vocational education.

The Federal Vocational Education Act, approved by the President three years ago this very month, has made possible a Nation-wide attack on some of these problems. As a result of this legislation there is in each State of the Union a board charged by the legislature of that State with the responsibility of promoting and administering a system of vocational education in the State. There is a Federal Board for Vocational Education charged by Congress with the duty of cooperating with the States in this work. There is Federal and State money available for the payment of salaries of vocational teachers and for the preparation of vocational teachers. In other words, there is a publicly supported Nation-wide organization charged with the responsibility of working on the solution of these problems. Of these agencies society will some day, and that not far distant, demand an accounting in terms of results attained or at least a statement of progress.

Nearly all the problems are phases of some of these fundamental ones, namely:

1. What groups are to be reached by vocational education?
2. What is to be the content of the vocational courses?
3. How are we to secure competent vocational teachers?

These are National problems because all the States are facing them and because the combined efforts of all the States and the Federal Government are needed to get very far toward a solution of them.

My remarks will be confined to the phases of these problems that come within the scope of the Vocational Education Act, and permit me to say here that one of the problems we are facing is to get the people of the country to understand that

there are many desirable educational activities that can not legally be financially aided under the terms of the act; that refusal of Federal aid is not necessarily a reflection on the work of a school or institution.

The Groups to be Reached

The wording of the Vocational Education Act is very clear in its definition of the groups to be reached. The grants to the States are made upon the condition that the money is to be used for the support of courses for (1) those who are employed in trade and industrial, agricultural, or home making pursuits, or (2) those who are preparing to enter these vocations.

It is not difficult to define the first group. There is little question as to whether or not a person is employed. There is comparatively little difficulty in determining whether or not the employment is in a vocation included in the field of trades and industries, agriculture, or home making. On the other hand, it is a real problem of promotion and organization to reach this group with systematic instruction suited to their specific needs. It is a problem of selling the idea of education to them. It is a problem of going out into the by-ways and gathering them in. It is a problem of recognizing the needs of the individuals composing this great group. It means a complete reversal of the school attitude. It means letting the bars down rather than putting the bars up. It is very evident from the wording of the Vocational Education Act and from the report of the Commission of 1914, that the primary intent of vocational education is to reach this 85 per cent of our citizens who are out of school at the age of sixteen.

The determination of the preemployment group seems to offer greater difficulties. By the preemployment group I mean persons over fourteen years of age, in school, who desire to use all or a portion of their school time for from one to four years to prepare for an occupation. While we are perfectly sure from the experience of the past that not over 15 per cent of the pupils will continue in school beyond the age of sixteen, we have done little or nothing in the way of attempting to determine in advance which of the pupils will probably fall in the 15 per cent group, and which of them will fall in the 85 per cent group, nor have we in the case of either group generally throughout our

school system given the pupils an opportunity to make an intelligent choice of a vocation. We have made little study of the individual with a view to advising him or her concerning either continuing in school or the intelligent choice of a vocation. Instead of making a study of these needs many educators have been searching far and wide for some kind of a universal course which would meet all the needs of all pupils regardless of the probable length of time the pupil might remain in school or of the character of his future occupation.

The problem of how to reach the employed group lies distinctly in the field of vocational education, and the responsibility of solving it rests squarely upon the shoulders of those who are charged with the promotion of vocational education. How to determine the preemployment group is a problem which lies jointly in the field of general education and of vocational education. The providing of instruction for this group after it has been determined is, of course, distinctly one of vocational education. I do not believe, however, that either those who are interested in vocational education or in general education can much longer leave untouched this great problem of vocational advisement.

Content of the Vocational Course

I assume that education has three aims:

1. Social training for intelligent citizenship.
2. Vocational training for effective work in a known occupation.
3. General education for appreciation and individual satisfaction.

Very little time is now being given to citizenship training. General education has been accepted as functioning effectively in training for citizenship. This acceptance is now being questioned. It is becoming increasingly apparent that effective citizenship training includes a body of information and experience that is not at present being furnished in the field of general education.

One group of educators advises "give all you can of citizenship training and general education, the vocational training will take care of itself." Another group advises "give all you can of general education until the individual has chosen a vocation, then drop

general education and give all of the time to vocational training." Still another group advises "eliminate some of the general education content and some of the vocational content of the instruction and set up a double aim, and call it the vocational aim, still retaining the program which has the general education aim, and have each pupil make a choice between the two." The advice of the latter group has been largely followed in the case of agricultural education and home economics education. In trade and industrial education, however, the advice of the second group has, for the most part, been followed.

Those who are working in the field of vocational education have constantly and persistently maintained that much of the subject matter taken over from the field of general education did not function in the field of vocational education. But very little has been done to organize in the field of vocational education and from the vocational standpoint and with a primary vocational aim, a content of instruction which could be offered to the field of general education as a contribution to the general education aim. It is quite possible that when the content of the vocational courses is definitely determined, these courses will prepare for a vocation with a reasonable degree of effectiveness and at the same time provide a reasonable amount of general education.

In my opinion, then, our most pressing problem is organization of the subject matter of vocational education.

The first step in the solution of this problem is to determine the occupations for which vocational training is to be given. Thus far we have considered only a small portion of the large number of occupations for which training should be offered. In the field of agriculture and home economics we have been considering as single occupations what in reality comprise a number of occupations, while in the field of trades and industries we have utterly disregarded a great number of occupations.

The second step is to take these occupations and analyze them one by one to determine what skill and knowledge is required for effective work in each occupation.

The third step in the solution of this problem is to determine the content which is common to groups of these occupations. It is here that we will probably find the instructional content which will be accepted by all educators as functioning in the field of general education.

The country will look to those who are responsible for the promotion of vocational education for the solution of this problem.

The Vocational Teacher

However definitely the content of vocational courses may be outlined the vocational teacher must always take local conditions into consideration and modify or amplify the content accordingly, but it is the exceptional teacher who can begin at bottom and build up the instructional content. Literature, standard and definite so far as practicable, must be furnished if vocational education is to be extended to even the tenth part of the number to whom the opportunity should be offered.

This also means the preparation of large numbers of vocational teachers. So far as the Vocational Education Act is concerned, I am convinced that the provision relating to the preparation of vocational teachers is aimed primarily at the professional preparation of persons who are already proficient in the vocation.

As I see it, the real problem which we are facing is this: Can we hope to compete successfully with the vocations themselves in such a way as to secure from these vocations the best persons for teaching.

For occupational extension instruction in the evening and part-time school and for short courses, it is quite possible that if we put forth sufficient effort we can get the services of vocationally competent persons during the time that they are free from the demands of these vocations.

The present trend in the training of teachers in institutions seems to put technical education and general education in the place of primary importance in the determination of standards, with practical experience or vocational ability as secondary. What we want is a person with practical ability and technical training.

It is evident that if we are to have real vocational education in this country, we must go into the market and compete with the vocations themselves for teacher-training material; that we must use our Federal and State money to supplement local money in such a way that the school will be able to compete with the vocation in paying competent persons.

In conclusion, then, I believe that the three most important problems which we are facing are:

1. To reach the employed group through evening and part-time instruction.
2. To analyze the vocations and organize the instructional content into a body of teaching knowledge.
3. To pay vocational teachers enough to induce vocationally efficient persons to enter the profession.

The outlook at the present time for the solution of these problems is most hopeful to those persons who have for years been looking forward to the time when in every State in the Union there would be a group of people whose primary business in life would be an attack on these problems. That time is here, and the members of this Society who have struggled for years to bring about this condition must feel a great deal of satisfaction.

FUTURE PROBLEMS IN THE ADMINISTRATION OF TRADE AND INDUSTRIAL EDUCATION

J. C. WRIGHT
Assistant Director, Trade and Industrial Education, Federal Board for Vocational Education

In considering the future problems affecting trade and industrial education certain fundamental assumptions have been made.

1. It is assumed that educational experience culminating in Federal and State vocational laws has been sufficient to establish the fundamental principles of trade and industrial training.

2. It is generally understood that all trade or industrial programs have for their aim the preparation of new workers for advantageous entrance into industrial employment and improvement in the efficiency of those already employed.

3. It is assumed that as a result of the Federal and State Vocational Education Acts, practically all, if not all, of the States have set up satisfactory working plans for preparing new workers for service and for the improvement of those who are employed.

4. It is generally believed that progress within the States in providing State directors and supervisors for carrying out the provisions of the State plan has developed much more rapidly than was to be expected when the vocational program became effective.

On the basis of these assumptions it appears that the immediate future does not require additional Federal legislation and State legislation only as it affects part-time compulsory attendance; that State plans and administrative organizations within the States have progressed beyond the actual development of trade and industrial schools within the States, and that the immediate problems before us have to do largely with the **field for training,** the **content of instruction,** and **instructor training.**

Developing a Workable Program for the Community

It is generally recognized that no community is justified in establishing a vocational program without first taking into

account the needs of the community for a specific kind of training. Many vocational schools have failed in their purpose because of attempting to give a kind of training for which the community had no need. A well-defined program should be prepared and all useless information eliminated. In so far as the industrial education survey enters into this discussion, it is assumed to have three functions:

a. To determine the field for training.
b. To determine the training agencies and entrance requirements which should be set up.
c. To determine and classify the instructional content.

Each of these objectives may be reduced to a minimum of details and if the results secured are sufficiently accurate, so as to establish qualitatively the facts about the community which will enable it to organize an efficient training program, the survey will have accomplished its purpose. In conducting the survey, careful consideration should be given to information which will enable those in charge to determine:

1. What are the occupations in the community?
2. Which of these occupations have a theoretical training value? By theoretical value is meant that a study of the occupation indicates that effective training can be given in so far as the manipulative and technical content are concerned.
3. Of the occupations having a theoretical training value, for how many is training practical when we consider such factors as the community attitude and special equipment necessary for the training considered in connection with the resources of the community?
4. For how many of the occupations possessing a practical training value has adequate provision been provided? This involves a consideration of private apprentice schools, such as railroad apprentice schools in railway shops, or endowed private trade or technical schools of secondary grade in which the training agency provides lines of training which adequately meet the needs of certain occupations.

As a result of this eliminating process, out of the very great variety and number of occupations carried on in any community, it will finally appear that there is a relatively small group of which it can be said "certain occupations exist in this community for

which training can be given, the training can be given by the community, there is no agency in the community in which adequate provision for training has been made, therefore, it is the obligation and responsibility of the community to make provision for such training agencies as will meet the needs of this group."

Selecting the training agency.—The selection of the training agency which will meet the need for occupations for which training is to be given may be compared to the action of a skilled mechanic in selecting a specific tool to accomplish a required mechanical operation. Is the problem one involving the preparation of new workers for entrance into the occupation, or has the survey shown the need of improving the efficiency of those already employed? What are the hours during which instruction may be given most satisfactorily? Are the pupils mature men or women or do they belong to that large group of boys and girls who have entered into employment under minimum age conditions?

This formal consideration of the occupations and training agencies may involve the survey of a single industry or it may involve a much larger survey of all the industries in a given community. As a result of a survey of the industries of any given community, those responsible for proper instruction ought to have pointed out to them the opportunity and need for trade and industrial training in specific occupations. A very large portion of the day schools throughout the country, as well as many of the evening and part-time classes, have functioned only in training for such occupations as machine shop, carpentry, cabinet making, plumbing, sheet metal work, and foundry work. There are many industrial centers in the United States in which these occupations are of secondary importance. The field of mining, of textiles, of pulp and paper industry, packing industry, and miscellaneous plants manufacturing dyes, potteries, fertilizers, and cement are all vitally concerned with the problem of increasing the mechanical and technical efficiency of their employees. It is a very grave responsibility in the administration of trade and industrial education to make certain that the program provides equal opportunities for training men and women as wage-earning employees in all these different kinds of industrial activities.

Cooperation between the public schools, employers, and labor organizations.—It is believed by some that trade and industrial education, since it is so closely related to production,

is a function which should be exercised by the industry itself. It is also believed that since vocational schools have for their purpose the increased efficiency of the individual, and, therefore, are directly related to his wage-earning capacity, that the school should be organized and maintained by labor organizations themselves. On the other hand, it is more universally recognized that the natural differences existing between employer and employee makes it difficult for industry to function in the conduct of these schools. If the schools are organized by labor unions the many more millions of men, women, boys, and girls who are not affiliated with a labor organization would be unable to attend. Experience has shown that the public schools can operate as a disinterested third party between employer and employee, and that schools organized under public control have the confidence of both.

One of the problems confronting Federal and State Boards in further promoting and perfecting the trade and industrial education program, therefore, depends quite largely upon successful propaganda work which may be carried on by State and Federal agencies and which will have for its ultimate purpose the full cooperation of public schools, employers, and employees in the development of an efficient training scheme.

Women in Industry.—Statistics indicate that approximately one-sixth of those employed in trade and industrial occupations are women or girls. While the publications and pronouncements issued by the Federal Board and statements relating to trade and industrial education in State plans make no difference between the trade and industrial classes organized for men and for women in so far as fundamental principles are concerned, it appears that an impression has become somewhat general to the effect that adequate provision was not made in the Vocational Education Act, the policies of the Federal Board, and in State plans for meeting the needs of women in industry.

It is the general opinion among those administering trade and industrial education that no separate statement of policies for the organization and administration of women's work should be made. Vocational training should not be organized on a sex basis, for single groups of individuals, for certain kinds of industries, nor for specific localities, but should be made equally available to men and women, boys and girls, trade unionist and non-trade unionist, and to all industries wherever it can be shown

that a trained worker can do a given job better than an untrained worker.

Responsibility for the Content of Instruction

No employer would think of sending out an employee to do a specific job without making certain that that employee was adequately equipped with the knowledge of his trade and with the necessary tools and materials required in getting the productive job under way. In the same way one of the very great responsibilities of the school superintendent is to make certain that instructors are provided with outlines of the content of instruction. The subject matter must be considered with reference to its relation to the occupation, the work of the individual, and the time and facilities for giving it to the pupils. These facts can best be determined by a careful study of the occupation itself, an analysis of the jobs involved, and of the field of related information. It is not to be expected that all teachers who possess the required qualifications for instructors in these classes will be able to make an analysis of their occupation or trade and arrange the instruction in the best instructive order without some specific assistance. This assistance might be furnished in the form of text-books or in the form of outlines containing an analysis of the occupation, together with suggestions on the subject matter and on how to impart the instruction most effectively. By using a modification of Richard's formula in which the equipment possessed by an efficient worker is represented by E=M+(T+I) we may visualize the character of the instruction which should be given.

A brief consideration of this need indicates that there are three kinds of publications which should be made available:

a. Outlines of the trade technical content based upon an analysis of the occupation.
b. Outlines of the general trade content based upon analyses of so-called general trade subjects, such as drawing, science, and mathematics, for the purpose of determining the particular content which may be regarded as necessary to the individual in his development as a skilled worker in the occupation.
c. Suggestive outlines in methods of instruction or the mechanics of teaching. These outlines cannot be put up on the basis of the usual courses in educational

psychology, history of education, methods of instruction, etc., but must be set up with due regard to the educational limitations and needs of those for whom they are prepared.

The Federal Board has undertaken to make these analyses and to publish the outlines of subject matter in the form of bulletins for certain trades or groups of trades. The large number of trades and occupations in which instruction is being given will make necessary that some other agency assume a part of the responsibility, if the job is to be completed in any reasonable time.

Part-time and day schools organized as departments or classes in cosmopolitan high schools are usually confronted with a very difficult administrative problem in making certain that the instruction given to the trade or industrial classes is not unduly influenced by the character of work given in high school courses. The curricula, courses of study, and textbooks common to these high schools have been developed and in use for many years. Where high school instructors are employed in vocational classes it is often very difficult to secure instruction and instructional content in order to meet the specific needs of the student in the industrial classes.

Instructor Training

It is generally recognized, not only by those directly responsible for the administration of trade and industrial classes, but also by employers and employees that the job of teaching depends to as large a degree as the job of a mechanic upon skill gained through experience.

It is quite generally recognized that at the present time the supply of men and women who can qualify in this double capacity is extremely limited, and that the factors and methods entering into the solution of this problem are unfamiliar and foreign to our usual instructor training program. When we speak of training teachers, the average individual thinks of a normal school, college, or university, of a residence course set up on a nine or ten months basis of formal instruction involving 80 or 90 per cent of the informational content and 20 or 10 per cent educational subjects. Both the academic or informational content and the educational subjects are planned on the basis of a set curriculum requiring the individual to pursue a certain sequence of subjects. There is no place in this program for the skilled mechanic, the man

or woman, who has found it necessary to enter into wage-earning employment at an early age before having finished high school, and hence is unprepared for pursuing either the academic or the usual professional courses.

It is also foreign to the customs and traditions of many institutions to think in terms of training courses carried on as extension centers meeting for two or three evenings per week with attendance ranging from one to fifteen individuals, or training carried on through correspondence and occasional personal visits by the instructor in charge. It is likewise foreign to the thinking of those in charge to conceive of the valuable instruction which may be given through an itinerant teacher.

During the present school year instructor training courses have been conducted at the Atlanta, Denver, and San Francisco regional offices. These courses were open to State Supervisors and to those directly engaged in instructor training in the States in these regions. The courses consisted of a two-weeks conference which included a study of the mechanics of teaching, embracing a formal analysis and classification of instructional content, lesson planning and teaching, securing an effective instructional order, instructional management, training in the plant, and the organization for training in industry. It is expected that as a result of these conferences those who are responsible for supervision and instructor training within the States will repeat in the institutions and communities of their respective States much of the instruction received at the conference. The possibilities for further extending courses of this kind are almost unlimited. Each State, in turn, should call a State conference of those who are responsible for instructor training within the State. In this way the State could easily control the character of the subject matter being given in the course and the selection of suitable candidates for the training classes.

In summarizing, it is my opinion that the responsibility for securing the full cooperation of public school officials representing the local communities, of employers representing industry, and of trade unions representing the employees, rests with State Boards for Vocational Education, together with such supplementary assistance as may be rendered by the Federal Board through national organizations. This cooperation can not be secured in a month, a year, or two years, but will come as the result of constant effort on the part of all concerned.

I believe that the responsibility for instructor-training rests, first, upon State Boards for Vocational Education, and then upon the shoulders of the various state agencies designated by the State Board for carrying out the program. Here again, the Federal Board is in a position to render a considerable amount of assistance in the development of standards and principles and in making studies and investigations to further extend the efficiency of the program.

The responsibility of the instructor-training institution as to the character of instruction and the requirements for admission should be a matter of agreement between the institution and the State Board. The State Board should also consider carefully the possibilities for further extending the work through various instructor-training devices, such as residence courses, extension courses, correspondence courses and itinerant instructors.

The responsibility for publishing bulletins containing outlines of the trade technical content, outlines of general trade content in the field of science, drawing, mathematics, and in the preparation of suggestive outlines on the organization and methods of the instruction should, in my opinion, be assumed by the Federal Board for Vocational Education. In carrying out this program the Federal Board should recognize and profit by the experiences and developments in the states and cooperate with institutions in making studies and investigations which will be of value to the national program.

In my opinion, the problem of "women in industry" will be solved in proportion as we have women supervisors for trade and industrial education,—women who possess adequate trade experience and who are charged with the responsibility of determining not only the need for training, but also the training agencies and the subject-matter which will best meet these needs.

FUTURE PROBLEMS IN THE ADMINISTRATION OF VOCATIONAL AGRICULTURE

GEO. A. WORKS
Professor of Rural Education, Cornell University, Ithaca, N. Y.

Most of the development of vocational instruction in agriculture under the stimulus of the Vocational Education law has been in the direction of establishing departments of agriculture in existing high schools. As contrasted with the establishment of separate or special schools this is certain to continue to be the direction of growth for sometime to come at least. Two factors are potent in contributing to this end: (1) Most of the farmers of the next generation are now living on farms, as the sons of farmers. Relatively a small percentage of our future farmers are likely to come from city and village boys. As a result the clientele of vocational education in agriculture is scattered. (2) The demand for farm help is so great throughout all sections of the country that relatively few farm boys find it possible to leave their homes to attend a remote vocational school even for the period of one year.

Any plans that may be formulated for vocational education for the prospective farmer must recognize the fact that if he is to be reached in any adequate fashion the centers through which he is to be trained must be near at hand. The very fact that in our rural high schools we now have a large number of such centers and the further fact that many farmers' sons who are planning to return to farming are attending these schools, are very naturally resulting in a general development of vocational instruction in agriculture in the high schools. This growth will be accentuated by the increased labor income that seems certain to come to the farmer during the next few years. This being the case there is a place for vocational instruction in agriculture as a part of the four year high school curriculum.

Some of the dangers resulting from this development are:

1. Relatively too much stress is given to the four year course in agriculture and not enough to the need for, and the possibilities of developing courses of shorter duration. The four year curriculum in vocational agriculture has a place in the program for vocational education in agriculture but at present it occupies

in most states, a prominence that relatively is all out of proportion to its importance. It is blinding those responsible for state and national development to other large and possibly more important opportunities.

Some of the modifications that should come in the near future are:

(a) Curricula of less than four years' duration should be organized because the nature of the farming in some sections is such that it does not warrant devoting approximately half of a boy's time to it over a period of four years. What is needed in many cases are curricula of two or three years' duration. At present there is too much warping of the agriculture of a community to fit the needs of the school. There should be a much closer adjustment of the instruction to fit the demands of the local farming. The agricultural curricula as now developed and carried out in practically every state are altogether too uniform.

(b) Closely related to this phase of the curriculum is the question of the courses in the various agricultural subjects that constitute the agricultural portion of the curriculum. There is too much discussion about the state courses in animal husbandry or farm crops and not enough consideration of the courses in animal husbandry or farm crops for given communities. Too many of our courses of study originate in the office of the state supervisor instead of in the needs of farm boys in the various communities of the state in which the instruction is offered.

(c) There should be much more general consideration given to the possibilities of developing "short courses" i.e., instruction for a period of a few weeks during the dull season for the farm boys who are unable to avail themselves of high school education. The members of this group are in the majority. In some cases it may be entirely feasible to develop such courses in connection with the departments in the high schools in which instruction is being offered throughout the year. This however, is not sufficient because in many communities this center is too remote for the older farm boy. Enough flexibility must be provided in the state and local administrative machinery so that such instruction can be established in connection with other than high schools and if necessary entirely independent of an existing school. Beginnings have been made in this direction in a few

states, notably Iowa, but there should be much more general realization of the importance of this aspect of the subject.

(d) The development of vocational instruction in agriculture in connection with the small rural high school has placed the local administration of the work in the hands of a body of men who in the main are not intelligently sympathetic with it. They are men who have trained exclusively along academic lines and who have not in their professional preparation or experience given any consideration to the need for vocational education, or to the problems presented by the growing demand for this type of education. If this work is to attain the highest measure of efficiency one of the administrative problems that must be solved in the near future is the development of a body of school principals and superintendents who are sympathetically appreciative of the needs of vocational education in the rural communities. Much will be accomplished in this direction when instruction in the administration of vocational education is regularly a part of the professional preparation of the school principal and superintendent.

It is generally conceded that the two most important factors in the development of vocational instruction in agriculture are a supply of well prepared teachers and professional leadership through supervision for this body of teachers. In practically all of the states the state college of agriculture has been the only institution designated to train the teachers of agriculture under the provisions of the Vocational Education Act. This is a good beginning in one respect because there is no body of institutions so well prepared to give technical instruction to prospective teachers as are these colleges. It should be borne in mind, however, that the preparation of the teacher of vocational agriculture includes at least three distinct and important aspects: i.e., vocational, technical, and professional. When consideration is given to the phases other than technical the record of the college of agriculture is not entirely beyond question.

As a whole they have been notoriously indifferent to the vocational experience of the student body. It is by no means safe to assume that because an individual has graduated from a college of agriculture that he had sufficient familiarity with farm practices to serve as a teacher of vocational agriculture. There is very general need for provision by which students admitted to training for teaching shall be required to have had farm experience

beyond the general requirement of colleges of agriculture, or else special provision should be made for obtaining such experience as a part of their training.

The records of these institutions in the matter of professional training will bear no closer scrutiny than their requirements in farm experience. In 1904, the Nelson amendment to the Morrill Act was passed in which it was suggested to the administrative authorities of the college of agriculture of each state, that $10,000 a year of the funds provided under the Act be spent in the training of teachers. In spite of the fact that a loose interpretation was given to the meaning of the expression training of teachers, when the high water mark was reached in expenditures for teacher training 8.8 per cent of the suggested amount was spent by the Land Grant Colleges in the preparation of teachers. This indifference on the part of the Land Grant Colleges existed in spite of the fact that for a decade previous to the passage of the Vocational Education Act there was a constantly growing demand for trained teachers of agriculture. This is an evidence that at least so far as most of these institutions are concerned, that professional training of vocational teachers has not had an opportunity to become well established. In the majority of them it is not even now adequately recognized by material and spiritual backing of the administrative forces. Before this activity can be adequately carried forward there must be some modification of the organization of the technical courses so that the prospective teachers may secure the necessary breadth in their technical training; the professional training must be strengthened by such freedom of administration in the work as will permit of much greater amount of supervised teaching than is now given to most prospective teachers, and above all there must be a large measure of recognition by the colleges of agriculture of the importance of this work than now obtains.

One of the most difficult administrative problems that will have to be met by the Federal Board for Vocational Education is that of the right administrative relationship between itself and state authorities. The principles governing this relationship as stated on page 11 of the 1918 report are sound and if the Board is to carry them into action they will not only render a great service to vocational education but they will also make a valuable contribution to constructive statesmanship dealing with the relation between State and Federal government in coopera-

tive enterprises. This is a contribution that is badly needed when consideration is given to the number of activities that might be profitably undertaken providing proper bases of cooperation are arrived at.

The two most evident dangers in endeavoring to carry these practices to completion are:

1. The failure of state authorities to recognize the desirability of the development of the work in terms of the conditions within the particular states when this action is manifest in concrete form. They accept it with enthusiasm when it is stated as an abstract principle. The difficulty begins when the administrative authorities of any state feel that a more liberal interpretation is given in another state. Immediately the needs and resources within their own state are lost to sight and the conditions of the other state are ignored. There is danger that this attitude on the part of the states may force the Board to uniformity even in the details of its administrative functions.

2. The tendency of centralized administration is to seek uniformity. Such action reduces criticism for the reason just given. It also makes for ease of administration. Within the requirements as specified in the law there must be uniformity. Even the law may not mark the degree to which it should extend but when it is over emphasized it retards progress by preventing variation. What is needed most in the development of vocational education is not uniformity but stimulating leadership that will result in each state realizing its needs in vocational education and under the stimulus of Federal cooperation endeavoring to meet them in the largest possible measure.

To safeguard the expenditures of the funds provided under the Vocational Education Act and at the same time secure the largest possible measure of initiative on the part of the individual states is absolutely essential to greatest success of this legislation. To accomplish it is the most difficult administrative problem that faces the Federal Board and one which can only be solved by fullest and frankest consideration of its difficulties by state and Federal authorities.

FUTURE ADMINISTRATIVE PROBLEMS IN HOME ECONOMICS EDUCATION

ANNA E. RICHARDSON
Assistant Director for Home Economics Education, Federal Board for Vocational Education

I wish very briefly to discuss with you some of the problems of the administration of home economics education.

After almost three years of work under the Act, we find that a good beginning has been made, but that there are many problems involved in the administration of home economics education yet to solve. Have we, as State and Federal people, really analyzed our job of administration? Have we carefully studied the needs of the women and girls who should be reached by this instruction, and then planned a program which will meet those needs? We are all tied pretty closely to the school and its point of view. Have we not very generally attempted to formulate a plan for vocational education which will fit into our present school system, rather than a program planned after studying the problem of home making in our State and the needs of our girls and women, as we have found them? How shall we set about outlining a program which is truly based upon the needs of our home makers? Unquestionably the first step is to find out those needs. We can not study them in general terms, but will find it more satisfactory to study the home maker's needs in relation to the groups to be reached by home-making instruction.

All of our girls and women may be roughly divided into three large groups:

(1) The women employed in the occupation of home making, either in their own home or for wage earning in some one's else home.

(2) The girls and women employed outside of homes in industrial or commercial occupations.

(3) The girls who are still in school.

Is home-making training desirable for all of these groups? The whole problem of training women for home making is complicated by the fact that more than 80 per cent of our women do eventually go into their own homes and practice home making as their chief occupation, and that the majority of the remainder

practice some phases of the vocation, even though employed outside of the home in wage-earning occupations.

The women employed in full-time home making comprise the largest group needing vocational training, for home making is still the occupation into which more persons enter than into any other one occupation, and the women enter this vocation with various degrees of skill and efficiency, which must be supplemented by training if they are to carry on the work of the home in such a way that the ideals of our family life are to be preserved and we are to rear a happy, healthy American people.

Our problem is not so clearly defined for the group of wage earners outside of the home as it is for the women employed in homemaking pursuits. The majority of these girls have little education, general or vocational, and their chief concern is to earn a living. They make up the great group of unskilled labor in factories, mills and other industrial plants, and their chance for advancement is slight unless opportunity is given to them to add to their meager education. Wherever the employment of these girls is such that part-time trade extension classes can be offered, they should have them. This is an important point for home economics people to clearly see, for sometimes in our enthusiasm we are apt to feel that every group of factory girls should be given home-making instruction. Unquestionably there should be home-making classes for those girls who expect soon to assume home-making responsibilities, or who wish preparation for wage earning in some home-making occupation. This group is comparable to the part-time trade preparatory classes which are organized on the basis of a contract of employment.

Should vocational training be offered **for the greater number** who do not expect immediately to assume full home-making responsibilities? **Yes, but not at a sacrifice to their wage-earning opportunities.** Educators are practically agreed that the two groups just outlined should be reached by vocational courses in home making.

The third group or girls of over 14, who are in school divide themselves pretty generally into three groups. First, a large group who are in high school simply because they are sent there. They have little choice and do not care what course they follow. The future is hazy and they take little heed of tomorrow. The second group is made up of girls who know that pretty soon they must get to work, and therefore they are anxious to have

training which will put them into employment. The third group is made up of those who fully expect to go on through high school and probably on to normal school or college. Should all of these groups be given vocational home-making education? From the standpoint that they are all girls who have some share in the life of the home, and from the fact that the majority of them will eventually have a much larger share — Yes. If, however, vocational home economics courses are to be limited to those girls who expect to go directly into their own homes, then we must exclude from this training, the groups who expect to enter other vocations.

Should assurance of immediate placement in the occupation determine whether or not a course is vocational? Or should not rather the avowed aim of the course, and the fact that the instruction offered is chosen to carry out that aim, determine a course as vocational, or designed for general education training?

Agreeing in the main on the groups who should be reached by home-making training, our next big problem is: How shall we determine the kind of instruction which should be offered?

The home-making needs are not identical for the three groups as set up above, and the choice of subject matter taught should not be the same for all groups.

For the group employed in home-making activities the instruction offered should do three things. First, it must offer opportunity to learn simple processes as they are carried on in the home; second, it must supplement any skill which the home worker already possesses and increase her ability to do the work of the home; and third, it must develop an understanding and appreciation of what the job as a whole means, develop managerial ability and appreciation for the finer and more spiritual and aesthetic side of home-making. The extent to which these three aims of instruction can be carried out will depend upon the ability, general education and training of the women.

In planning instruction for this group it must be remembered that at most, the home maker will come for only short unit courses offered for two or three times a week, so that the opportunities with this group are necessarily limited and the instruction material will have to be chosen carefully. Theoretical education will have little place. Text books and courses of study which deal with general phases of home-making should be discarded. The woman needs specific help to do her job.

Neither must we rest content with merely **offering** courses—we must see to it that the women are reached, interested and attracted to come for instruction. This is not an easy job as we have so little machinery, no compulsory attendance laws, no hope of advancement in wages for many of them,—nothing to bring them, unless we have something to give which they want. In teaching such groups the teacher and the content of instruction are both on trial, as the class is made up of rather discriminating critics. But it is worth all the effort we can put forth.

The instruction in home-making offered for the group of girls who are employed outside of their homes should be based upon their immediate needs. We must begin our training of this girl where we find her and build upon her own home-making interests. She is interested not so much in problems of construction but in choice, renovation and care. As these girls are in school for from six to eight hours a week and many of them for more than a year, systematic instruction should be offered which will teach fundamental home-making processes, as well as the essential related instruction and general education which will make them intelligent workers either in their own homes or in occupations outside of the home.

The aim of the instruction in home economics given to the girls in school will vary, as was pointed out earlier, with the different groups of girls found in school.

It is impossible to teach all of the vocation of home-making to the girl in school. We can not hope that the day school will turn out a 100 per cent product, therefore we must needs decide the amount of skill, managerial ability, scientific and artistic appreciation which should be given as a part of her home-making training.

The third problem which we, as administrators, face is that of providing adequately trained teachers. In vocational education, even more than in general education, the success of the work will depend upon the teacher. The institutions of the country are each year graduating girls well trained in the scientific aspects of home economics, but are we training many good teachers of home-making? Furthermore, the chief interest and concern of the institutions has been to train the teacher in the all-day school. As we have earlier pointed out, this is only a small part of the problem of home-making teaching, for the great group of our

people are yet to be reached through evening schools and short courses. Ideally our short course teachers should be picked by hand, for the successful teacher must not only know her subject and how to teach it, but she must know her students and their needs. She must know the general home standards of her class and be in full sympathy with its problems.

I have attempted to show that the big problem before us, both as Federal and State administrators, is the working out of a real program for vocational education in home economics, based upon a study of the needs as revealed in the analysis of the home-making occupation as it is practised by the various groups; that we have been too apt to follow the well-beaten path as marked out for general education, rather than to strike out and determine content and method for vocational courses; and that the great challenge to us is to reach with vocational education the large group of girls and women who are out of school, as well as the small group who are in school.

There has recently been introduced into Congress at the earnest request of the American Home Economics Association and the General Federation of Women's Clubs a bill to further extend the opportunities for home-making training. This bill proposes: (1) To remove home economics from that section in the Law where it is now included with trade and industry. In this way standards may be set up for home economics which are more nearly suited to the needs and conditions of the vocation of home-making. (2) To appropriate additional funds for home-making education. (3) To appropriate the fund on the basis of total population; the present fund which may be used for home economics is apportioned to the States on the basis of the urban population. As 31 of the States have a larger rural than urban population, and as the need for home-making training is as great in rural as in urban centers, a more equitable adjustment of these funds will come from an apportionment on the basis of total population.

This legislation offers increased opportunities for vocational training for women. With this legislation pending it is imperative that we stop and think of some of these problems that are before us. Are we making the most of our opportunities? Have each of us worked out a program for vocational education in home economics shich shall be supported and pushed by the States and the national government?

COMPULSORY PART-TIME SCHOOL ATTENDANCE LAWS

LEWIS H. CARRIS
Field Representative, Federal Board for Vocational Education

In this paper the discussion of part-time schools is confined entirely to compulsory part-time schools for employed minors—the type of school organized and conducted under laws which require such minors to attend school a limited number of hours a week for a limited number of years after entering upon employment.

Experience of the States

The movement for compulsory part-time continuation schools in America is of very recent origin. Wisconsin in 1911 enacted the first law setting up a compulsory part-time scheme: Pennsylvania followed in 1915, and seventeen other states in 1919. Several states, it may be noted, including Indiana, Ohio, Michigan, New York, and Massachusetts, have enacted permissive mandatory laws authorizing local districts to establish such schools, but communities in these states have not, except in a few cases, Boston being notably an exception, taken advantage of the state laws.

General Principles

There are a few fundamental educational principles that have become axiomatic. All the states have agreed that education is a public affair, demands support from public taxation, both local and state, and that the welfare of the state demands that its future citizens shall receive educational training which will enable them to become active partners in citizenship upon reaching maturity. The States have therefore necessarily established compulsory education laws requiring attendance of minors upon schools. Shall we say, then, that the state has no further responsibility than that involved in passage and enforcement merely of general compulsory education laws? Can any scheme of compulsory education requiring attendance only upon full-time schools meet the real educational need in a community which is becoming every year more intensely industrial, the need, that is to say, for

the adjustment of youth to industrial life? In other words, should educational provision for the specific needs of youths emerging from the dependency of parental support and from minute school direction to the status of self-support with individual choice as to industrial activities, be an added activity of the state?

The questions admit of only one answer, that in any adequate scheme of education provision must be made for the gradual initiation of minors into employment. It would seem wise for a state to build its compulsory part-time attendance law upon its compulsory full-time attendance law, advancing the required age of compulsory part-time attendance as the minimum age for compulsory full-time attendance is advanced.

Minimum number of minors required to establish classes.

A state law should be as general in its application as possible, and it will be clear that any fixing of an absolute minimum as regards number of employed minors in a given district, required to give effect to the law in the establishment locally of part-time schools, will result in the educational neglect of a very considerable number of minors who should be reached.

The range of minimums designated so far in the states having compulsory part-time laws is from 12 in California to 200 in Massachusetts. In several instances population is taken into account and the law made effective only for cities of certain size.

In general, it may be said, that possibility of enforcement of the law must determine the minimum, which should be in every case as low as it can be made, without rendering the law practically unenforceable.

Age Period of Required Attendance

The highest age limit designated in any state law so far enacted is 18 years, and the lowest and most commonly designated minimum age at which compulsory part-time education may begin is 14 years.

No general pronouncement can be made as to what minimum age and maximum age is best to be designated in compulsory part-time laws. Determination of these limits is an individual problem for each state. The general principle to be observed is that above referred to, namely, that the period of compulsory

part-time attendance should be coextensive with the period of transition and adjustment for minors leaving school to enter upon wage-earning employments.

Hours a Week of Required Attendance

There is considerable difference of opinion as to what constitutes the proper period of part-time attendance which may be required, with a preponderance in favor of 8 hours. Most of the states require this as a weekly attendance.

Total Number of Hours Attendance in a Year

Twelve states which have passed these laws require that the part-time schools or classes shall be open for the same length of term as the other public schools of the district. The minimum required in any of the 19 states which have passed part-time laws is the minimum set up by the Federal Vocational Education Act to enable the state to expend that portion of the trade or industrial fund which must be expended for part-time education if expended at all, namely 144 hours.

Time for Holding Classes

Practically every state requires that the schools or classes shall be held during the usual working hours of the minor; usually the laws state specifically that such classes shall be held between the hours of 8 a. m. and 5 or 6 p. m. Some of the state directors favor the elimination of Saturday part-time classes; others believe that Saturday can be used advantageously for part-time work, especially in the larger cities.

With the experience which we are gaining as the result of this legislation in 19 states, other states passing similar legislation would probably act wisely in postponing for one or two years the complete enforcement of compulsory part-time education. The general opinion seems to be that it would be wise for a state to enact a permissive mandatory law with the permissive mandatory features to be enforced for one, two, or three years, with the additional provision that the permissive features be eliminated at the end of that time, and that the establishment of schools by local districts should be then made mandatory.

Time When Law Goes Into Effect

Ten of the states enacting legislation in 1919 provided that the laws should go into effect the same year; six have provided for enforcement of the law in the fall of 1920; one has provided for permissive mandatory establishment during a period of two years, with the compulsory establishment of part-time schools in 1921. For states contemplating future legislation, the question of time limit for putting the law into effect is an important one.

Initiative and Referendum Laws

One State provided in its act that the question of establishment of compulsory attendance upon part-time schools by minors should be submitted by a referendum vote in all cities where there were 200 employed minors. It is interesting to note that every city in that State in the fall election voted to require the establishment of part-time schools. The question of providing for such a referendum feature should be considered in new legislation. Many students of the problem are inclined to think that the referendum feature provides for a more democratic measure and makes the communities voting to establish such schools feel a greater responsibility for their success. It may be advisable to provide for a referendum vote at a specified general or special election with the provision for initiation at future elections.

Residence and Place of Employment

Considerable confusion has arisen in the experience of the states with reference to the place where the minor shall be required to be in attendance upon a part-time school. For example, it may be that compulsory part-time schools will be established in a large city and not in some of the surburban small towns. The minor from the suburban towns may be employed in the city and may be excused from attendance upon a part-time school, since no such school has been provided in the district where he resides. A suburban minor then is in competition with and has unfair advantage over the minor who resides in the city where he seeks employment. Probably the best way to deal with this question is to provide in future legis-

lation that attendance shall be required in the district where the minor is employed, with permissive attendance upon a part-time school when such a school has been established in a district where he resides. Of course, some objection to this provision will be found in that communities may feel that they are put to the expense of providing education for residents other than those within the municipality. It is assumed, however, that juvenile labor is employed at a profit, if employed at all, and that since the community in which a minor is employed profits indirectly from such employment, it may, therefore, fairly be required to provide educational facilities for the minors of school age employed in the district whether residing there or not.

Relationship to and Coordination With Child Labor Laws

The compulsory part-time education law in any State should be framed so as to supplement the child labor laws of the State, and so as to coordinate within the State all forces dealing with the betterment of the condition of employed minors. Care should be taken in framing such legislation not to break down in any respect child labor laws already existing. It should be kept in mind that the compulsory part-time law will not fulfill its function unless as the result of its passage the employed minors of the state better their social, economic, and educational condition.

Permits

The State law should provide for the issuance of permits to minors as a prerequisite to employment. It is generally conceded that responsibility for the issuing of work certificates should rest with the school authorities, and that the cancellation of such certificates should rest with the same people. The certificates should be issued to the minor for employment with the particular employer, should be retained by the employer during the period of employment, and should be returned to the school authorities upon the conclusion of such employment.

Penalties

Several of the State laws at present in force are weak in that they provide inadequate penalties for the violation of the com-

pulsory part-time laws. There are four kinds of penalties which may be provided:

1. Upon the school district for failing to establish a school.
2. Upon the employer who illegally employs a minor.
3. Upon the parent for failing to compel attendance.
4. Upon the minor for failing to attend.

Substitute Attendance

It is probable that few states will enact legislation which will require attendance upon a public part-time school. As in the case of other forms of compulsory part-time attendance, it is probable that attendance upon a private school will be accepted as a substitute for attendance upon the full-time school. Since educational opportunities should be equal, care should be taken to provide that the private institutions undertaking this work, whether they be parochial, corporation, commercial, or schools conducted for personal profit, maintain satisfactory standards.

Enforcement

The State law should provide for the enforcement of attendance through the specific designation of courts having jurisdiction, and the requirement of the appointment of school officials with power and responsibility as attendance officers.

State Reimbursement

It is assumed that part-time education is a joint State and local responsibility, and that the financial burden should be distributed between the two responsible parties. Part-time legislation should therefore include generous financial assistance for communities maintaining this type of instruction. The larger the amount of State aid the more rigid the rules and regulations governing this type of school may be, with the result that a much better grade of work can be developed.

Power to Local Districts

The State law should give power to Local Boards of Education to raise money, acquire sites, and provide adequate housing

for the part-time schools, whenever there is any question as to authority in existing state laws concerning this power.

Exemptions

The State law should provide for exemption from attendance to persons who are physically handicapped, or are unable on account of some mental or physical defect to attend such schools. Such exemptions should not be more extensive than in the case of the exemptions provided as regards attendance of children under the compulsory part-time age upon the regular public schools.

Census of Minors

A State law should provide for an adequate and continuing census of all minors showing residence, age, employer, etc., since this information must be accurate and up-to-date if all minors subject to the state law are to be reached.

It may be noted in conclusion that compulsory part-time school attendance laws may eventually be correlated with laws enacted to prescribe regular apprenticeships in certain trades.

STATE PROBLEMS OF ADMINISTERING VOCATIONAL EDUCATION

EDWIN R. SNYDER
Commissioner of Vocational Education, Sacramento, Cal.

Most of the problems of vocational education are future problems. None of the problems of vocational education have been completely solved, and if any of these problems were solved, we would from time to time have the job of re-solving them because the vocational course must be governed entirely by the demands of the trade and these demands are forever changing with the endless change in economic conditions.

In California we are well on the way to the solution of a number of important problems in vocational education. Time limits the number of State problems that can be opened up for discussion at this session. I shall discuss three, namely: the necessity for the promotion of the full-time course, supplemental subjects, and intensive vs. extensive promotion. In California we do not apply any Federal and special State vocational education funds to the promotion of special courses maintained in the evening.

The liberal State and county aid to high schools, together with the apportionment of these funds upon the basis of attendance causes the evening high school to flourish and to maintain a class of instruction that appeals to the students. Usually the students demand as their first choice instruction which will increase their incomes. Some of our larger cities cannot find sufficient housing facilities for the classes for adults, so great has been the development of evening high schools.

In order that a further use of the school plant may be encouraged, the California State Board of Education does apply Federal and State vocational education funds to special as well as part-time classes maintained between 6:00 a. m. and 6:00 p. m. The major portion of those who attend evening schools and special and part-time classes in order to secure instruction supplemental to their occupations are devoting their time to securing elementary instruction that they should have secured years before in the full-time day schools.

While evening, special, and part-time classes for giving

instruction in vocations or supplemental to vocations need promotion, it is equally important that we shall promote vocational education in the regular high schools of the country. Otherwise, we will be forever attempting to patch up the mal-education secured by our working men and women during their youth.

In California we have compulsory full-time attendance up to the age of sixteen and compulsory part-time attendance up to the age of eighteen. The high schools are rapidly becoming common schools. Our youth are entering these schools in greater and greater numbers and if many of them are to get useful instruction, the courses of these schools must be vocationalized.

To emphasize the development of courses in evening and part-time schools to the neglect of vocational courses in full-time schools would be to neglect, not the most pressing, but certainly the most fundamental problem of vocational education: that of preparing persons for entrance upon occupations instead of that of patching up deficiencies that could have been satisfactorily provided for during the more or less non-productive period of adolescence. An adequate program for the promotion of vocational education includes the promotion of all three types of courses.

The second topic which I desire to discuss is that of supplemental subjects. Our experience in California leads me to the conclusion that the most important and the most difficult task which we have is the development of the content of the supplemental courses in science and mathematics and the selection and training of teachers to handle them.

The science and the mathematics of the usual high school course can fully function vocationally only for those who desire to engage in mathematical or scientific research. They do not function fully even for engineers and they scarcely function at all for those who enter the trades and industries. No satisfactory text books have been produced either in supplemental science or supplemental mathematics for any one of the common trades or industries. The teacher handling the subject has to construct a content as he goes along. In vocational classes the instruction must be largely individual and the lack of a complete outline of content makes it very difficult for the teacher. Research which will establish the content for the supplemental subjects of each trade or industrial course is very badly needed.

The supplemental subjects largely make up the content of instruction for all evening and part-time pupils who are already engaged in skilled occupations. If the school is to contribute anything to the art of industry in this country, it will have to contribute it through instruction in supplemental subjects. The school shop will never be able to improve upon the practices of the commercial shop. The school can, however, improve the art of industry by giving the workman a proper foundation in drawing, mathematics, and science.

The third topic which I desire to discuss is intensive versus extensive promotion. Two courses are open to the states in attempting to promote vocational education. One is the use of the funds to promote the establishment of a large number of schools and classes distributed throughout the entire territory of the State. The other is to promote classes only where the conditions are best for developing a high class of work. The vocational education act is frankly an act for promotion; and either of these policies might be classed as promotional. However, it is impossible for us to establish and maintain satisfactory vocational courses and courses supplementing vocations until we have established a satisfactory content of instruction in these subjects.

This means that we must first place emphasis upon the working out of part-time and full-time type courses of study in agricultural, home economics, trade, and industrial subjects. This can be done satisfactorily only by intensive study and intensive application. The solution of the problem of extending these courses into the less wealthy and more remote communities of the State must wait upon the solution of the problems of working out satisfactory type courses of study.

UTAH'S VOCATIONAL PROGRAM AND PROBLEMS OF STATE ADMINISTRATION

FRANCIS W. KIRKHAM
State Director Vocational Education, Utah

Utah accepted the terms of the Smith-Hughes Act in March, 1917. The State Board of Education was made the State Board for Vocational Education and a division of vocational education was created in the State department.

Before a year had passed, under the direction of the State Department of Public Instruction and in cooperation with the district superintendents a plan of vocational education for the public schools had been adopted by the State. This plan was called "a plan to extend public school education in the school districts of Utah." (Utah is divided into 40 consolidated school districts and 5 city school districts.) This plan advocated Smith-Hughes part-time, evening and day schoool. Agricultural, home economics, and trade courses in high schools on a vocational basis over twelve months, and pre-vocational courses in the grades; it provided for twelve month's direction and supervision in health education, and education in civic and patriotic service. It advocated additional standards for high school graduation including normal health habits, substantial vocational ability, and accomplishments in thrift and community service.

This progress was not for a few schools but for all the schools of the State because it was education. The object of the Federal Act is the promotion of vocational education, and this is an attempt to promote vocational education for the State.

Before the legislature met the following year in February, 1919, public sentiment in favor of this vocational program for the public schools had been created by means of general publicity carried on by school people. The Superintendent of Public Instruction, school superintendents, and Boards of Education were united on a single school program to be enacted into law. Legislators had been circularized and visited, the support of prominent citizens had been secured. A school committee on legislation was at the State capital at the opening days of the session and was a well organized third house until the last day.

The Utah legislature enacted the following laws:

1st. By two-thirds majority it proposed an amendment to the State Constitution making it mandatory upon the state to raise at least $25 per capita school population State aid for public school education. (Heretofore State aid was only a little in excess of one half this amount.)

2nd. It extended the compulsory limit of attendance upon public schools to 18 years and enacted that every boy and girl up to 18 must go to school 30 weeks. However, if the pupil is over 16 or if the 8th grade is completed, then the pupil may be excused by the superintendent of schools to go to work providing he attends school at least 144 hours a year between 8 a. m. and 6 p. m., but when not at work he must attend school full time. There is no place in Utah for the idle rich, at least under 18 years.

In the administration of this law every young person registered with the school principal at the beginning of the school year. We know where all our young people are this very day and they know we are concerned with their educational welfare. this registration is carefully checked with the annual school census taken in July.

Young people at work are given working permits and no employer under the law may employ a person under 18 without a school permit. As soon as their work is completed the superintendent is notified by the employer and the pupil returns to full time school at once.

This law has popularized and filled Utah schools. Everybody wants to go to school now because everybody is going to school. Young people knowing they must go to school part of the time decide that they will go to school all of the time. High school enrollment has been increased this year 40 per cent. Salt Lake City alone has enrolled in its schools 4,000 more children this year than last. In rural districts 97 to 98 per cent of all boys and girls up to 18 years are in full time schools this very day, only 2 per cent are in part-time, or special schools, and only 1 per cent are out of school. Thus our so-called part-time law is really a full time law; we have a 2 per cent part-time problem, a 98 per cent full-time problem.

I have district reports with me here to prove these astounding facts.

The demand of all these people upon the high schools is "some shaking up." They demand things to do as well as books to study. They must be given some one thing in which they can excel in order to encourage them to take other work which they need. Utah's high school will soon be the college of the common people teaching and preparing them for the duties of life. A high school education will be in truth and in fact the birthright of every boy and girl in our State.

Try to imagine, if you please, what it would mean to your own high school if 98 per cent of your young people attended school and it became your duty to give them the class of work which would meet their needs.

3rd. We enacted a law to promote health education in the public schools and for children of pre-school age and for parents, created a division of health education in the State Department with a Director of Health Education. The health program does not begin with the study of the names of all the bones of the body, then the muscles and then the nerves. Heaven forbid.

Utah's health education trains in health habits, begins in the first grade by teaching the child to keep things out of its mouth and to properly use a handkerchief, to look both ways in crossing a street, etc., and so on up through the grades and through the high school.

4th. A law was enacted providing for the establishment and maintenance both by State and local aid of all day vocational schools and classes, of part-time and evening classes, in agricultural subjects, in trade and industrial subjects, and in home economics subjects and finally, the law specifically provided for "civic and patriotic service education continuing over the entire year in the school districts of the State of Utah."

Under this law the following program is required for state aid:

1. Registration of all boys and girls in the district between 2 and 18 years of age.

2. Enrollment in at least one class that continues over 12 months and for which no credit is given until the end of 12 months. This class must combine class instruction with out-of-school projects that logically grow out of the instruction, for example, vocational and pre-vocational agriculture, home economics, and trade work, classes in personal hygiene, or physical education, or civics, etc.